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LAND FORCE

INFORMATION OPERATIONS

INTELLIGENCE, SURVEILLANCE, TARGET ACQUISITION AND RECONNAISSANCE (ISTAR)

(ENGLISH)

(This publication becomes active on receipt.)

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FOREWORD

1. The foundations for Canadian Land Force doctrine are the capstone and keystone manuals in the B-GL-300 series. An understanding of the capstone and keystone doctrine is fundamental to the understanding of any of the supporting doctrinal manuals. Of particular importance to this manual is B-GL-300-005/FP-001 *Information Operations*. It is the keystone manual that established the Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) concept and it should be read in conjunction with this manual.

2. B-GL-352-001/FP-001 introduces new doctrine into Canada's Army. The introduction of the ISTAR concept in B-GL-300-005/FP-001 *Information Operations* marked the beginning of the Army's transition from Machine Age warfare to Information Age warfare. The present manual follows that path and explains the framework that allows the transition to occur.

3. ISTAR incorporates the Intelligence system. It coordinates the planning and tasking of collectors in response to the Commander's Priority Intelligence Requirements (PIRs) and Information Requirements (IRs). In addition, it provides a focal point for achieving tactical synergy between collector capabilities, units, command, staff and the intelligence process. Intelligence is a critical sub-system within the ISTAR system and as a result this manual should also be read in conjunction with B-GL-357-001/FP-001 *Field Manual– Intelligence*

4. This manual's primary purpose is to explain doctrine for combat operations. It includes a chapter which addresses Military Operations Other than War (MOOTW) as a means of explaining the role of ISTAR in these types of operations. Doctrine for MOOTW is covered in the applicable doctrinal publications.

5. The Land Force does not conduct operations in isolation. This manual presents the Land Force tactical doctrine only. An understanding of joint and combined operations is necessary but is beyond the scope of this manual.

6. Unless otherwise noted, masculine pronouns apply equally to men and women.

7. The latest version of this manual can be found on the DIN in the Army Electronic Library. Its French version is under B-GL-352-001/FP-002.

PREFACE

1. The Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) system represents the integration of existing capabilities within the Army and new capabilities that will soon be available due to the advances of Information Age technology. Since each of these capabilities represents a system in itself, ISTAR can be described as a "system of systems".

2. ISTAR is a component of Information Operations, which is part of the application of the evolving Information Age to the conduct of warfare. As a result this manual is forward looking. However it must be a system that can be implemented with the equipment and techniques that are currently available in the Army or are likely to be acquired in the near future. Thus this manual does not incorporate concepts that would more aptly be described as "Future Warfare".

3. In the context of the Army, the Brigade Group is the primary formation prepared for combat. As such, this manual focuses primarily on the ISTAR system within the Brigade Group. The capabilities of the ISTAR system vary depending on the assets that are integral or allocated to a formation or unit. The concepts for employment do not vary.

4. Unit level ISTAR within the context of a Brigade Group is addressed in this manual. Resources normally allocated to a Brigade Group in combat often augment units operating in Peace Support Operations (PSO) or Domestic Operations. As a result the Brigade Group level doctrine contained in this manual applies to units in those contexts.

5. This manual introduces the All-Source Cell (ASC) as the Intelligence processing element of the Brigade Group. For those who are familiar with the Intelligence Collection and Analysis Centre (ICAC), the ASC is effectively the same. The name has been changed to reflect common terminology with our ABCA partners.

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CHAPTER 1
INTRODUCTION

It is a general weakness of men in delivering ideas that they are able to convince themselves their words represent a break with the past and a new beginning.

John Ralston Saul, *Voltaire's Bastards*

SECTION 1
THE ISTAR SYSTEM IN CONTEXT

1. The ISTAR system is but one component of the overall effort to defeat the enemy on the battlefield. Further context for the ISTAR system will be developed when discussing the Doctrinal Foundations in Chapter 2. Certain concepts must be well understood before the ISTAR system can be explained. The critical concepts are the Combat Power Model and one element of that model, the Information Operations combat function.

THE COMBAT POWER MODEL

2. Combat power is the total means of destructive and/or disruptive force which a military unit or formation can apply against an opponent at a given time and place. It is generated by the integration of a number of elements referred to as combat functions. The Army defines six combat functions: Command, Information Operations, Manoeuvre, Firepower, Protection and Sustainment. The aim is to convert the potential of forces, resources and opportunities into an actual capability that is greater than the sum of the parts. Integration and coordination are used to produce violent, synchronized action at the decisive time and place to find, fix and strike the enemy. The application of tempo, designation of a main effort and synchronization generate combat power through the integration of the combat functions.[1]

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[1] B-GL-300-003/FP-000 *Command* provides an in depth explanation of the Combat Functions.

Figure 1-1: The Combat Power Model

INFORMATION OPERATIONS[2]

3. IO is the element of combat power that allows modern commanders to exercise Mission Command within the manoeuvrist approach to operations in the Information Age. IO is not new. In its simplest form it encompasses all operations that gain information and knowledge that enhances friendly execution of operations, while denying the enemy similar capabilities by whatever means possible. The principal objective of IO is to achieve superiority and relative advantage between the friendly Commander's decision-action cycle and that of the adversary, and to use that advantage to enhance and enable other elements of combat power. The application of IO enhances battlefield visualization and improves designation of main effort, control of operational tempo, and synchronization. IO is divided into two action components and four support components.

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[2] B-GL-300-005/FP-001 *Information Operations* is the source for Information Operations doctrine.

4. **Action components**. The two action components of IO are Offensive Information Operations (Off IO) and Defensive Information Operations (Def IO). The elements of these action components are:

a. Operations Security (OPSEC);

b. Counter Intelligence (CI);

c. Military Deception;

d. Psychological Operations (PSYOPS);

e. Counter PSYOPS;

f. Electronic Warfare (EW);

g. Computer Network Attack (CNA);

h. Special Information Operations (SIO); and

i. Physical Destruction.

5. **Support components**. The four support components of IO are:

a. Communications and Information Systems (CIS);

b. Relevant Information, including Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR);

c. Civil-Military Cooperation (CIMIC); and

d. Public Affairs (PA).

SECTION 2
ISTAR DEFINITION AND ROLE

DEFINITION

6. The ISTAR system can be defined as the structure within which information is collected through systematic observation, is integrated with information collected from specific missions and processed in order to meet the Commander's intelligence requirements. It also permits the detection, identification and location of targets in sufficient detail and in a timely enough manner to allow their successful engagement by weapon systems. The ISTAR system integrates subordinate systems that collect data and the intelligence process. The intelligence process provides the direction to the subordinate systems and the processing of collector data. These capabilities have been resident in Canadian doctrine for many years. Information technology has made the integration of these systems more effective and a synergy results from this new system. As an integration of other capabilities, ISTAR is a "system of systems".

7. There are three distinct parts to the ISTAR system:

a. **Intelligence**[3]. Intelligence encompasses three elements: a product, a process and an organization. All three elements are included in the "I" in ISTAR. At the heart of the ISTAR system are intelligence organizations that process data and information from single-source information and other all-source intelligence. They generate the intelligence product, upon which Commanders rely to make decisions. Much of the data and information provided by the ISTAR assets could be regrouped into the four basic intelligence classifications: Human Intelligence

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[3] Intelligence. The product resulting from the processing of information concerning foreign nations hostile or potentially hostile forces or elements, or areas of actual or potential operations. The term is also applied to the activity which results in the product and to the organisations that engaged in such activity. (A-AD-121-AAP/JX-001)

(HUMINT)[4], Imagery Intelligence (IMINT)[5], Signal Intelligence (SIGINT)[6] and Acoustic Intelligence (ACOUSTINT)[7].

b. **Communications and Information Systems (CIS)**. CIS are not a subordinate systems to ISTAR but they represent critical links. Communications systems are the means by which collectors report to the intelligence cells and the means by which the intelligence product is disseminated. Information systems provide tools for intelligence analysts and provide the ability for collaborative analysis between the intelligence cells and the collectors and between different levels in the chain of command.

c. **Collectors**. Collectors provide the input to the ISTAR system. They are tasked in accordance with the Commander's priorities and they respond through the ISTAR system to contribute to the all-source intelligence product. Collectors can be electronic or human. In effect, every soldier on the battlefield is a collector. Within the ISTAR system, however, we use the term collector to refer to those units and sub-units whose primary mission is information collection.

8. In addition to Intelligence, there are three other existing subordinate systems that compose the ISTAR system:

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[4] HUMINT. A category of intelligence derived from information collected and provided by human sources. (A-AD-121-AAP/JX-001)

[5] IMINT. Includes all intelligence gathered through photography, thermal observation or other imaging devices.

[6] SIGINT. Includes both Communications Intelligence (COMINT) and intelligence from other electronic emissions (ELINT).

[7] ACOUSTINT. Intelligence derived from the collection and processing of acoustic phenomena. (A-AD-121-AAP/JX-001)

a. **Surveillance**[8]. Systematic surveillance of the battlespace provides for the collection of information. It is conducted by observation of the enemy and terrain using optical sensors, electronic detection, thermal imagery, radar, satellites, Unmanned Aerial Vehicles (UAVs), ground sensors and any other means available. It also cues reconnaissance and target acquisition resources to investigate specific activities or to obtain more detailed data/information on a particular observation. It provides security to friendly forces through early warning of adversary activity within gaps, on exposed flanks or in rear areas. Surveillance implies that the adversary must act, move or radiate before it can be detected.

b. **Target Acquisition (TA)**[9]. TA provides detailed information about enemy forces and locates them with sufficient accuracy to enable weapon systems to engage those elements selected as targets. It includes TA for both direct and indirect fire weapons as well as for non-physical attack systems, such as PSYOPS, coercion and indirect approach.

c. **Reconnaissance**[10]. Reconnaissance is active in nature. Reconnaissance assets are assigned a mission to obtain information about the adversary or

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[8] Surveillance. Systematic observation of the aerospace, surface or subsurface areas, places, persons, or things, by visual, aural, electronic, photographic or other means. (A-AD-121-AAP/JX-001)

[9] Target Acquisition. The detection, identification and location of a target in sufficient detail to permit the effective employment of weapons. (A-AD-121-AAP/JX-001)

[10] Reconnaissance. A mission undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy, or to secure data concerning the meteorological, hydrographic, or geographic characteristics of a particular area. (A-AD-121-AAP/JX-001)

terrain. Reconnaissance includes activities performed by reconnaissance units but is not restricted to those units. Many elements of the ISTAR system can perform reconnaissance functions.

9. There are two means by which Commanders acquire the information they need to conduct operations. Higher and flanking forces provide the information or the Commanders use their own resources to acquire information. ISTAR integrates the information and intelligence from both of these means to provide a seamless, coordinated picture to the Commander.

ROLE

10. The role of ISTAR is to integrate the intelligence process with the surveillance, target acquisition, and reconnaissance assets in order to improve a Commander's Situational Awareness (SA) and to cue manoeuvre and strike assets.

PRINCIPLES

11. The principles of ISTAR can be described as follows:

a. **Centralized Coordination**. ISTAR must be coordinated centrally at each level of command without sacrificing the principle of mission command. This ensures the most effective and efficient use of resources.

b. **Timeliness**. Information and intelligence must be provided to the Commander in a timely fashion to allow him to work within the enemy's decision-action cycle.

c. **Accuracy**. The ISTAR product must be accurate and relevant to the operation it is supporting.

d. **Passage of Information**. Within an ISTAR system it must be possible to pass information between

appropriate commanders and staffs without overloading them with irrelevant data.

e. **Economy of Effort**. The ISTAR system provides improved SA, allowing the Commander to achieve economy of effort in his manoeuvre and firepower assets.

CHARACTERISTICS

12. The following are the characteristics of the ISTAR system:

a. **Responsiveness**. The system must be able to react quickly to the Commander's information and intelligence requirements and to rapidly exploit targeting information.

b. **Continuous Coverage**. Surveillance, target acquisition and reconnaissance must be able to provide coverage 24/7 in all weather.

c. **Robustness**. ISTAR assets must provide a robust mix of overlapping systems in terms of technology, range and performance in order to cope with enemy action as well as changing meteorological and light conditions and to defeat adversary deception plans.

d. **Tailorable.** ISTAR assets should be modular so that the right mix of assets can be tailored for a force, according to the needs of the mission.

CHAPTER 2
DOCTRINAL FOUNDATIONS

A doctrine of war consists first in a common way of objectively approaching the subject; second in a common way of handling it.

Marshall Ferdinand Foch 1919

SECTION 1
THE STRATEGIC AND OPERATIONAL CONTEXT

DEFENCE OBJECTIVES

1. **Mission**. Canada faces no direct military threat to its sovereign territory. Nevertheless, there remain direct and indirect threats to our national security for which a military response may be required. These include narcotic smuggling, organized crime, illegal immigration, terrorism and the uncertainty caused by the growing proliferation of missiles carrying weapons of mass destruction. The Canadian Forces are responsible to defend Canada and Canadian interests and values while contributing to international peace and security.[11] In B-GL-300-000/FP-000 *Canada's Army*, the capstone doctrine that sets the context for all Army doctrine,[12] the mission for the Army is divided into three separate Defence Objectives:

a. **Defence of Canada**. The Army defends Canada by operating alone or jointly with the air and maritime forces. They assist in the conduct of surveillance and control of Canada's territory, airspace and maritime areas of jurisdiction and respond to requests from provincial authorities for Aid of the Civil Power. The Army contributes by providing

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[11] *Strategy 2020*.

[12] B-GL-300-000/FP-000 *Canada's Army* provides a more detailed explanation of the subjects covered here.

humanitarian and disaster assistance at home and assisting law enforcement agencies within Canada.

b. **Collective Security**. When directed, Canada's forces operate in combined operations to deter or contain aggression against Canada and Canada's allies. These missions may be in defence of the North American landmass in concert with the United States or abroad as part of NATO or a coalition force.

c. **Contribute to Global Stability and Peace**. Canada contributes to global stability by the provision of forces to peacekeeping mission under the auspices of the United Nations, through arms control verification and humanitarian and disaster relief abroad.

SPECTRUM OF CONFLICT

2. Armed forces are employed throughout a spectrum of conflict that runs from peace to war. While peace, defined as the absence of conflict, is the desired goal, its attainment is often fleeting. The Army can operate throughout the spectrum. It does this by a combination of combat and non-combat operations. Combat operations are operations where the use or threatened use of force, including lethal force, is essential to impose our will on an opponent or to accomplish a mission. Non-combat operations are ones in which weapons may be present, but their use or threatened use is for self-protection and not otherwise essential to accomplish a mission. While there is some overlap, combat operations are generally consistent with warfighting and non-combat operations predominate in Operations Other than War (OOTW).

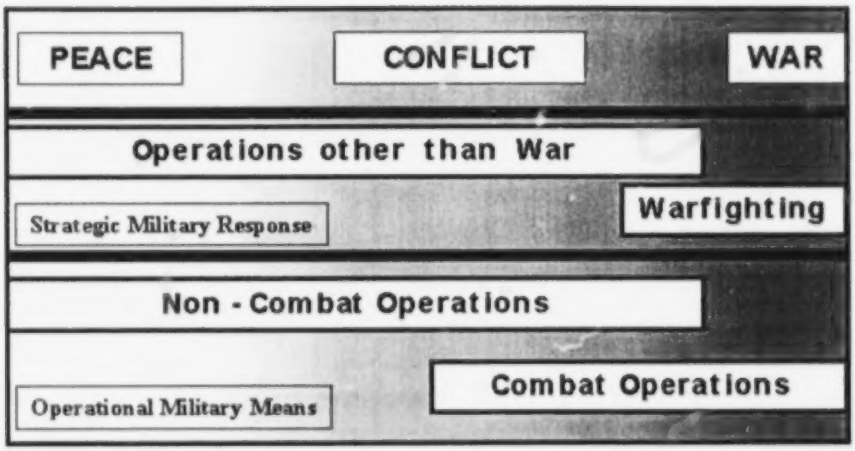

Figure 2-1: The Spectrum of Conflict

FUTURE WARFARE SCENARIOS

3. In The Future Security Environment, the Army has adopted the NATO concept of future warfare. In that concept there are two views of future conflict. In "View 1", conflict is between the near mirror image armed forces of nation states. This type of conflict is expected to be expeditionary, joint and combined in nature. This view of warfare is expected to be mobile and fast paced, spread over a larger area with fewer forces, but not necessarily of a short duration. In "View 2", warfare involves non-state actors and is likely to be characterized by the presence of more irregular forces than View 1. Opponents will not necessarily be soldiers or even dressed in military uniforms. Our forces will be more vulnerable to attacks on Lines of Communication in View 2 conflict.[13]

LEVELS OF CONFLICT

4. There are three levels of conflict. The **strategic** level entails the application of a nation's resources – moral, economic, scientific, technological and military – to achieve political objectives. At this level national aims are established, direction is given and resources are

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[13] DLSC Report 99-2 *The Future Security Environment*, pp. 57-63.

allocated. At the **operational** level, the strategic aims and direction are considered and allocated resources are employed in military campaigns and major operations. They are usually joint and often combined. At the **tactical** level battles and engagements are planned and executed in accordance with the operational plan. It is at the tactical level that combat and non-combat operations take place.

BATTLEFIELD FRAMEWORK

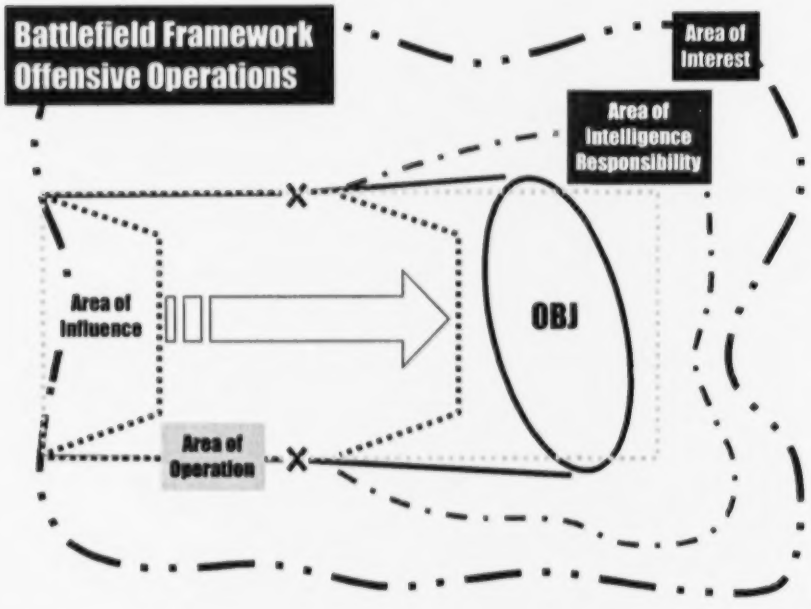

Figure 2-2: Battlefield Framework for Offensive Operations

5. At the operational and tactical levels, the battlefield is organized for combat.[14] Each Commander is allocated an **area of operations (AO)**, which is the volume of space in which that Commander has the authority for the conduct of military operations. For any one level of command, areas of operations never overlap. Beyond this area, a Commander has an **area of interest (AI)**. This area helps the Commander identify and monitor factors, including

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[14] B-GL-300-002/FP-000 *Land Force Tactical Doctrine* explains these subjects in more detail.

enemy activity, which may affect the Commander's future operations. A Commander decides for himself how far he must look, in both time and space. The area of interest may extend beyond the theatre of operations. This is addressed further in this manual, when the Information Environment is discussed.

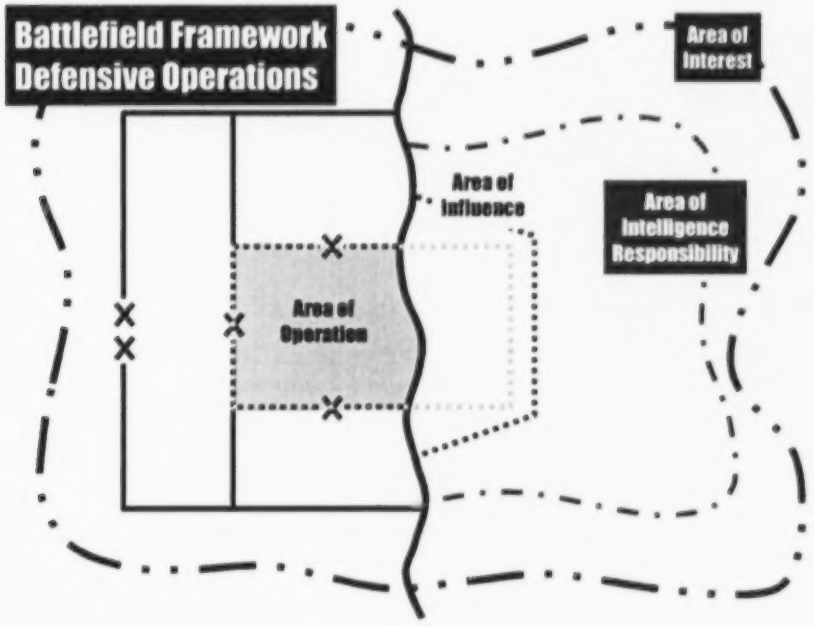

Figure 2-3: Battlefield Framework for Defensive Operations

6. The **area of influence** is the volume of space in which a Commander can engage the enemy. The range of systems under command determines the size of the area of influence. The **area of intelligence responsibility (AIR)** is an area allocated to a Commander, in which he is responsible for the provision of intelligence, within the means at his disposal. This area is within a Commander's AO; however, it may extend beyond his weapons engagement range, especially in OOTW, and may be assigned to him in regard to the capability of his organic collection systems to fulfil his higher commander's requests for intelligence.

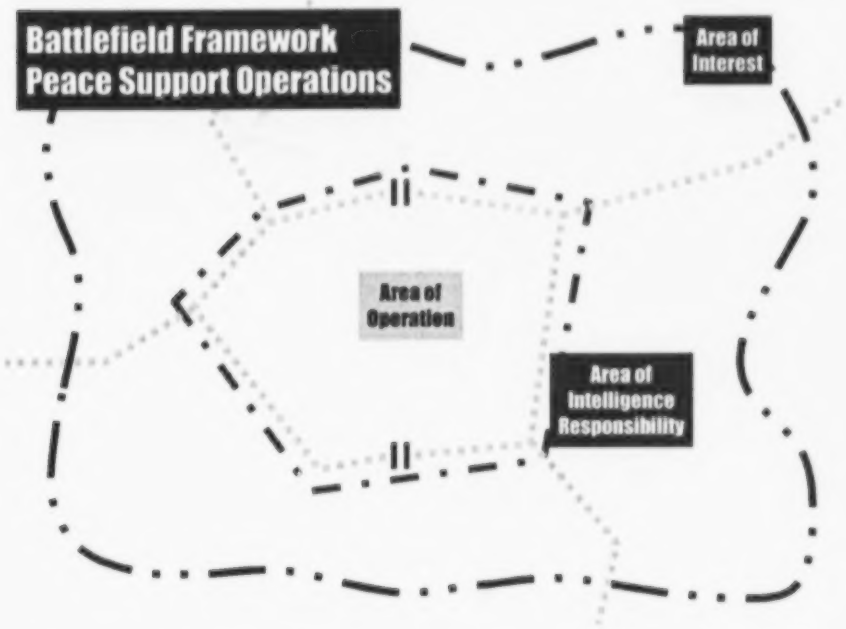

Figure 2-4: Battlefield Framework for Peace Support Operations

7. Within the AO, further distinction is made between **deep, close and rear** operations. **Deep operations** are normally those conducted against the enemy's forces or resources not currently engaged in the close fight. They prevent the enemy from using his resources where and when he wants to on the battlefield. **Close operations** are usually the corps and division current battle and include the engagements fought by brigades and battalions. **Rear operations** assist in providing freedom of action and continuity of operations, logistics, and command. Their primary purpose is to sustain the current close and deep operations and to posture the force for future operations.

MANOEUVRE WARFARE

8. Manoeuvre Warfare has the following objective: to defeat the enemy by shattering his moral and physical cohesion, his ability to fight as an effective coordinated whole, rather than by destroying him

physically through incremental attrition. The following characteristics further clarify Manoeuvre Warfare[15]:

a. It aims to defeat the enemy by destroying his will and desire to continue by seizing the initiative and applying constant and unacceptable pressure at the times and places least expected.

b. The emphasis is on the defeat and disruption of the enemy rather than attempting to hold or take ground for its own sake.

c. Generally, it aims to apply strength against vulnerability, in contrast to attrition warfare where strength tends to be applied against strength.

MISSION COMMAND

9. Mission Command, the Army's philosophy of command within the Manoeuvre Warfare approach to fighting, has three enduring tenets: the importance of understanding a superior commander's intent, a clear responsibility to fulfil that intent, and timely decision-making. The underlying requirement is the fundamental responsibility to act within the framework of the commander's intentions. Together, this requires a style of command that promotes decentralized decision-making, freedom and speed of action, and initiative. Mission Command meets this requirement and is thus key to the Army's doctrine. Under the Mission Command philosophy, commanders must:

a. give orders in a manner that ensures that subordinates understand intent, their own tasks and the context of those tasks;

b. tell subordinates what effect they are to achieve and the reason why it needs achieving;

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[15] B-GL-300-003\FP-000 *Command* is the source for more information on Manoeuvre Warfare.

c. allocate appropriate resources to carry out missions and tasks;

d. use a minimum of control measures not to limit unnecessarily the freedom of action of their subordinates;

e. allow subordinates to decide within their delegated freedom of action how best to achieve their missions and tasks.

SECTION 2
THE GLOBAL CONTEXT

THE INFORMATION AGE

10. The proliferation of information systems and the rapid passage of information characterize the Information Age. New Information Technologies (IT) have revolutionized the environment in which the military commander draws his information. Areas of operation and interest have increased at all levels of command primarily due to better mobility, better weapon system capabilities of both friendly and enemy forces, increased SA and enhanced ability to network collectors and their data. Digital data communications has greatly increased the volume and speed with which information is passed on the battlefield.

THE REVOLUTION IN MILITARY AFFAIRS

11. Information Age technologies have created a vast increase in the amount of information within the Global Information Environment (GIE) and the Military Information Environment (MIE). Similar technologies have also resulted in increased precision and lethality of weapons. The combination of these technologies in the Information Age has resulted in a Revolution in Military Affairs.

THE INFORMATION ENVIRONMENT

12. Commanders rely upon information to make decisions. With the advent of the Information Age, military commanders are faced with a great deal of information. We define the environment in which they operate as the Information Environment. The GIE is the total of all sources of information that is available. The GIE includes all individuals, organizations, or systems, most of which are outside the control of the military or government. The MIE is that portion of the GIE relevant to military operations. The MIE includes sources under the direct control of a particular commander, sources from superior headquarters and open sources. The interaction of the GIE and the MIE makes much more information available into the Area of Operations, compresses the traditional levels of conflict in time but expands them in space, and gives operations a simultaneous and continuous character. Tactical military operations are more likely to have political and social implications, requiring additional focus on non-military factors in planning and execution.[16]

13. The Information Age has expanded a commander's area of interest to include portions of the GIE and MIE that are relevant to his mission. His area of interest may now include activities in the host nation's political, economic and social environment. It includes opinions, attitudes and events that occur back in Canada, whether they are directly relevant to his mission or not. It may also include statements made by leaders of large international bodies like the UN, NATO or the Organization for Security and Cooperation in Europe (OSCE).

14. The Information Age has also allowed the commander to access more information from within his expanded AI. National communications and intelligence links provide him access to all the resources of the CF, in addition to the forces allocated to his command. It allows a commander to have access to specialist advisors as required. This allows economy of effort since such advice may only be rarely required and the deployment of the specialist may not

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[16] For more detail on the GIE and MIE see B-GL-300-005/FP-001 *Information Operations*.

be feasible. Specialist intelligence analysis is an example of this type of advice.

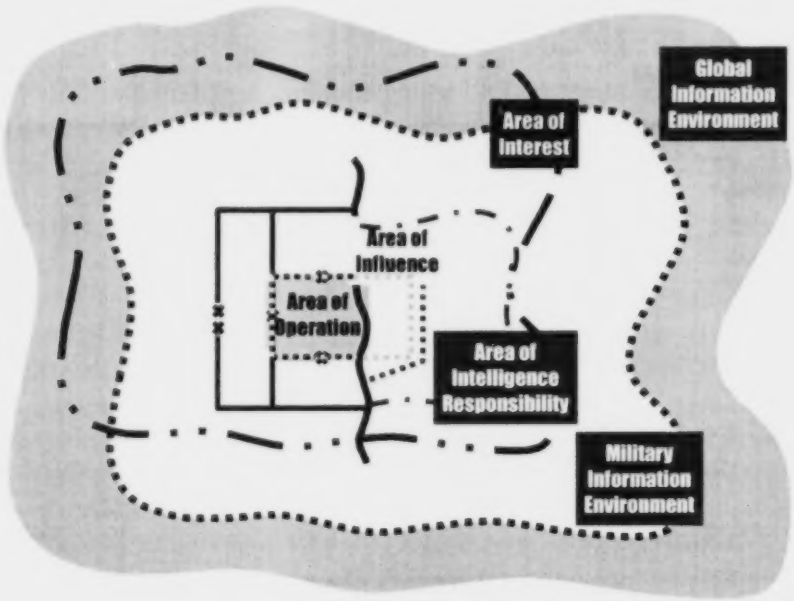

Figure 2-5: The Battlefield Framework Lies Within the Information Environment

SECTION 3
THE CONCEPTUAL CONTEXT

BATTLEFIELD VISUALIZATION

15. Battlefield Visualization (BV) is defined as "the process whereby the commander develops a clear understanding of his current state with relation to the enemy and the environment, envisions a desired end state, and then subsequently visualizes the sequence of activity to this end state." [17] BV has two components: the art of BV, which is a human process that can be developed in all of us to a

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[17] B-GL-300-005/FP-001 *Information Operations* p. 8.

greater or lesser degree, and the science of BV, which deals with the technology that can enhance our human capabilities.

SITUATIONAL AWARENESS

16. SA is the representation of the knowledge that commanders require in order to make decisions. SA has three components:

a. **Blue SA** provides information on the friendly forces disposition and the overall battlefield geometry (i.e. boundaries, control measures, etc). It also provides commanders with asset visualization, the accurate status of his own and other friendly forces' human, materiel and information resources.

b. **Red SA** provides information on the enemy location, disposition, status and intention.

c. **Brown SA**, provides information on all aspects of the environment where operations are conducted. It consists primarily of terrain and meteorological information but could also include information about environmental and NBC hazard, space, geo-spatial relationships, the electromagnetic spectrum, politics, economics, sociology and law.

17. Red and Brown SA form what we have traditionally called Intelligence, that is knowledge of the enemy and the terrain.[18] While Red and Brown SA are closely linked, Blue SA is also reliant on Brown SA to assess impacts on both friendly operations and capabilities. Thus SA is a tripod upon which BV can be achieved.

18. SA has past, present and future dimensions. Past SA includes actions taken by friendly and enemy units and information on weather

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[18] Intelligence. The product resulting from the processing of information concerning foreign nations hostile or potentially hostile forces or elements, or areas of actual or potential operations. The term is also applied to the activity which results in the product and to the organisations that engaged in such activity. (A-AD-121-AAP/JX-001)

and terrain conditions. Present SA is a slice in time picture of the forces as they are equipped and how they are prepared for battle. Future SA involves the prediction of enemy activity, status of friendly units and the effects of weather or military operations on the environment.

THE COMMON OPERATING PICTURE

19. The Common Operating Picture (COP) is the representation of SA. It has distinct parts that represent the Blue, Red and Brown portions of SA. In a digitized Headquarters the COP would normally be represented as digital overlays on a digital map display. It can also be represented on a paper map using talc or acetate overlays. The critical feature of the COP is that it includes all three components of SA (Blue, Red and Brown).

THE COGNITIVE HIERARCHY

20. Battlefield sensors[19] and collectors produce data, which by itself is of little use to the Commander's decision making process. The Commander requires understanding to contribute to his BV. The process that turns data into understanding is a cognitive process. We describe the process using the cognitive hierarchy.

21. Sensors and collectors collect data, the fundamental building block of the model. Elements of data collected on the battlefield include the location of a Command Post (CP) by Electronic Support Measures (ESM), the sighting of a tank by an Observation Post (OP) or the image of a defensive position transmitted by an UAV. That data is then processed to become information.

22. Initial processing can be either machine or human processing. Computers can check the data against databases of known data and

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[19] Sensor. An equipment which detects, and may indicate, and/or record objects and activities by means of energy or particles emitted, reflected or modified by objects. (A-AD-121-AAP/JX-001) In this context the definition of sensor is broadened to include sensors, such as patrols, that are human rather than machines.

determine whether the new data fit the pattern or whether something new has been detected. Intelligence analysts or sensor operators can do the same.

23. Information is turned into knowledge by cognitive processing[20]. Red SA is knowledge of the enemy. Brown SA is knowledge of the environment, which includes both the physical environment (the ground) and social-political environment in the theatre of operation. Intelligence is the combination of Red and Brown SA. Thus Intelligence is knowledge. In military intelligence terms, this is understood to mean the fusing of single-source information from different types of sources, the application of training and experience and drawing conclusions from the fusion. For example, imagery from UAV or satellites may be compared with ESM intercept information to confirm the location of an enemy Divisional Artillery Group.

24. The staff supports the Commander by producing Blue, Red and Brown SA in order to assist his development of BV. The next step toward BV is to apply judgement. This is primarily the domain of the Commander but the staff assists his application of judgement as well. The Operations Planning Process (OPP) is an example of the staff assisting the Commander's judgement. The application of judgement completes the hierarchy, develops understanding and BV, which in turn inspires action.

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[20] This is intended as an academic examination of the process that produces knowledge. The step in the Intelligence Cycle where this is performed is called Processing and is more fully explained in B-GL-357-001/FP-001 *Intelligence Field Manual*.

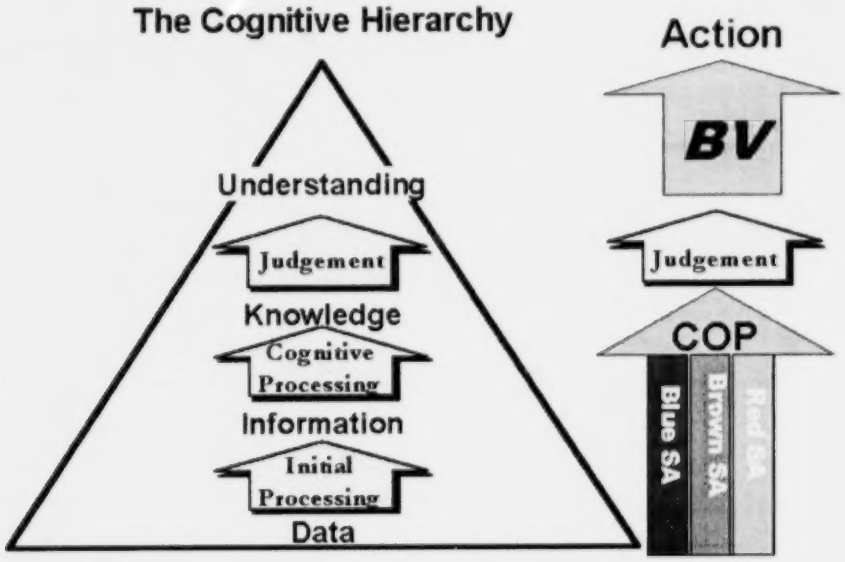

Figure 2-6: The Cognitive Hierarchy

CHAPTER 3
THE ISTAR SYSTEM

The great thing is to get the true picture, whatever it is.

Winston Churchill 1940

SECTION 1
GENERAL

1. The ISTAR system is composed of intelligence, CIS and collectors. It integrates the intelligence process and collectors. CIS is the component that forms the infrastructure for the system but does not respond directly to the direction provided by the ISTAR system. Relevant aspects of CIS are covered in Chapter 4, Information Management.

2. The G2 is ultimately responsible to the Commander for Intelligence. As such the G2 is responsible for the functioning of the ISTAR system. The formation G2 staff consists of the G2, the Plans cell and the Ops cell. The G2 Plans prepares the Information Collection Plan and the ISTAR Plan that provides the direction to the ISTAR system. The G2 Ops manages the collection, processing and dissemination of Intelligence.

THE INTELLIGENCE CYCLE[21]

3. The Intelligence Cycle is the sequence of activities whereby information is obtained, assembled, converted into intelligence and made available to users. The Intelligence Cycle includes four phases:

a. **Direction**. As the first phase of the cycle, direction includes both the Commander's direction to the intelligence staff to provide intelligence on matters of concern and direction establishing priorities in the

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[21] The Intelligence Cycle is more fully explained in B-GL-357-001/FP-001 *Intelligence Field Manual*.

collection, processing and dissemination of intelligence.

b. **Collection**. During this phase, information collection sources and agencies gather information and deliver information to the requesting intelligence staff.

c. **Processing**. In the third phase of the cycle, information is converted into the intelligence product (knowledge).

d. **Dissemination**. Dissemination is the timely conveyance of intelligence in an appropriate form and by any suitable means, to those who need it.

4. The sequence is cyclic in nature, and activities related to all four phases of the cycle occur concurrently. At the same time that information is being collected, previously obtained information is being processed, intelligence is being disseminated, and further direction is taking place.

THE ISTAR COORDINATION CENTRE

5. The ISTAR Coordination Centre (ISTAR CC) is at the heart of the ISTAR process. The ISTAR CC is where single-source information collected by the formation is analyzed and all-source intelligence products (Red SA) are produced. The All-source Cell (ASC) forms the core of the ISTAR CC.

6. The ISTAR CC operates within the context of the Brigade HQ and thus is ultimately responsible to the Commander through the G3. ISTAR CC supports the G2 in his responsibilities for providing intelligence to the Commanders and staff. This is similar to the way in which the Fire Support Coordination Centre (FSCC) supports the CO of the Close Support Artillery Regiment in his role as the Commander's fire support adviser and the Airspace Coordination Centre (ASCC) supports the Air Defence Battery Commander in his role as the Commander's air defence and airspace control adviser.

7. The G2 Ops is in charge of the ASC. This cell consists of intelligence plotters, collators and analysts who take single-source information and data and produce an all-source intelligence product. The operations of the ASC are described in B-GL-352-002/FP-001 *ISTAR Procedures*.

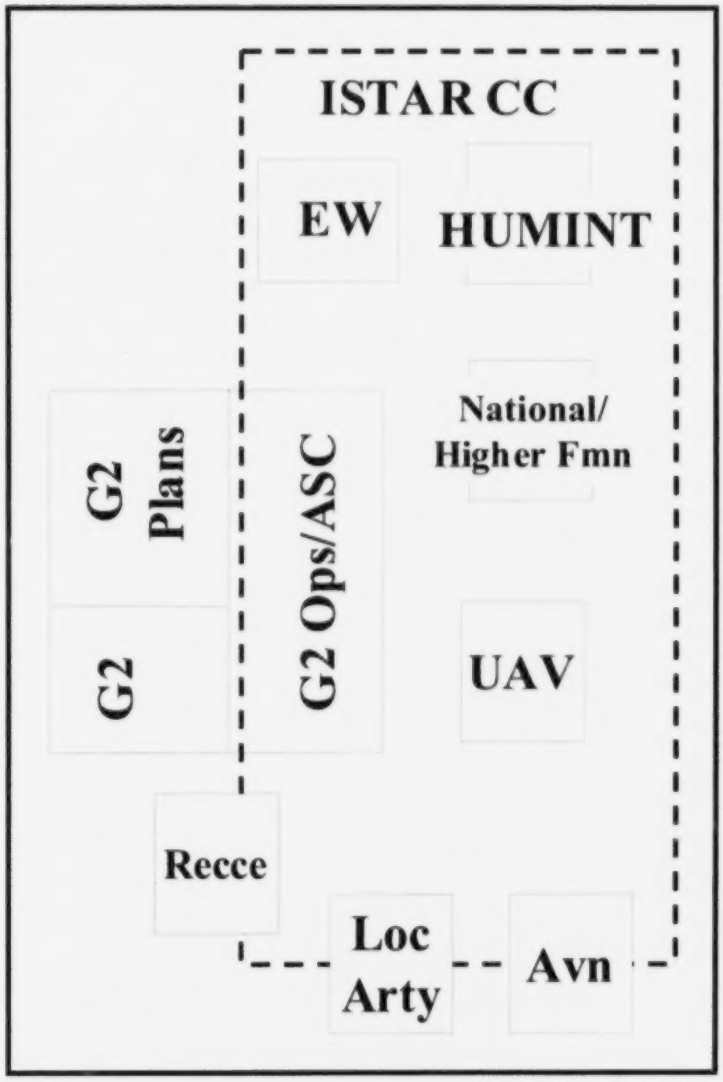

Figure 3-1: The ISTAR CC

8. Surrounding the core are coordination cells (coord cells), representing collector sub-units. These coord cells provided single-source information to the ASC for analysis and integration into the

Red and Brown SA portions of the COP. The coord cells may also pass high priority information directly to engagement systems as necessary for timely engagement.

9. The collector coord cells represented depends upon the assets integral or allocated to the formation. There would normally be a link to the higher formation intelligence cell. If the next higher formation is not Canadian, there would also be a link to national intelligence resources. Electronic Warfare (EW) would have a LO as would any Locating Artillery (Loc Arty) element of the brigade Close Support Artillery Regiment.

10. The Reconnaissance Squadron (Recce Sqn), the radars, UAVs, etc from the Loc Arty element of the brigade Close Support Artillery Regiment and the Aviation Squadron (Avn Sqn) may be represented at the ISTAR CC. The Recce Sqn and Avn Sqn may pass their reports by radio on either the Brigade Command Net or on a dedicated Intelligence Net. The Loc Arty may pass their information by radio directly or through the FSCC.

THE PLANS TEAM

11. The G2 staff is integrated into the Bde HQ planning effort. The Bde Plans team consists of the G3 Plans, the G2 Plans and the G4 Plans. Assisting the G2 Plans are the Geomatics cell and the Meteorology cell. This G2 Plans team coordinates its efforts with those of the ASC. This coordination consists of providing terrain analysis products and meteorological forecasts to the ASC so that the ASC can complete the picture of Brown SA. The Plans team also depends upon the intelligence produced by the ASC as the basis for the Intelligence Estimate.

BRIGADE HQ AND UNITS

12. Within the Bde HQ there are three other Coordination Centres that are important for the operation of the ASC. The FSCC is the Bde HQ link to the Fire Support system and allows the ASC access to Artillery Intelligence. The Engineer Support Coordination Centre (ESCC) is the Bde HQ link to the Engineer net and the ASC relies upon it for specialist engineer intelligence. The ASCC is the Bde HQ

link to both the Air Support and Air Defence (AD) nets. The ASCC provides air attack warning and access to the Common Air Picture. It is also responsible for the airspace coordination necessary for UAV planning.

13. The remainder of the Bde units provide the ASC with combat information that completes the COP. In particular, combat information adds necessary detail for close and rear operations that may not be provided by dedicated ISTAR assets.

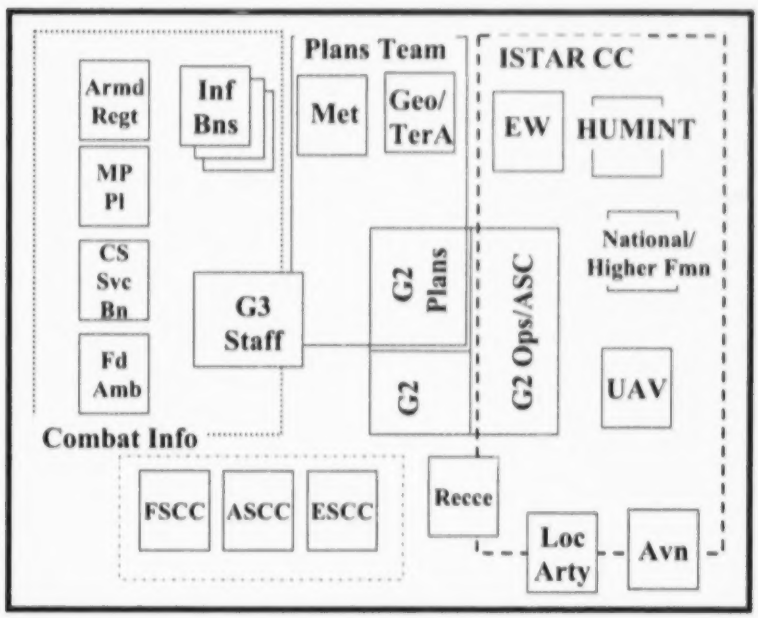

Figure 3-2: ISTAR CC Relationship with the Brigade HQ and Units

SECTION 2
PROCESSES

GENERAL

14. Canadian formation HQs use the Operations Planning Process (OPP) to produce a plan based upon the mission, concept and intent of the higher commander. The OPP is supported by the Intelligence Preparation of the Battlefield (IPB) process and the Targeting Process to produce a plan that maximizes combat power

from amongst the combat functions. These processes are the detailed implementation of the Decision-Action Cycle concept.

THE DECISION-ACTION CYCLE

15. Army doctrine defines a Decision-Action Cycle that has four steps. While this cycle is not a part of the planning process, it serves to define the broad concepts that identify the activities necessary to receive direction, consider relevant factors, make a decision and turn that decision into action. ISTAR allows the Commander to accelerate his Decision-Action cycle. The four steps are:

a. **Direction**. Direction focuses the planning effort. For the staff direction comes in terms of the orders received from the higher formation and the Commander's mission analysis and planning guidance, which further focuses the planning activity.

b. **Consideration**. This is the process of gathering the information, conducting the analysis, preparing and comparing courses of action prior to seeking a decision from the Commander.

c. **Decision**. The Commander takes the decision on which course of action to pursue based upon staff input and his own assessment of the situation. It includes the final preparation and issue of the orders for the execution of the mission.

d. **Execution.** In execution, the action resulting from the decision is initiated and monitored by the staff.

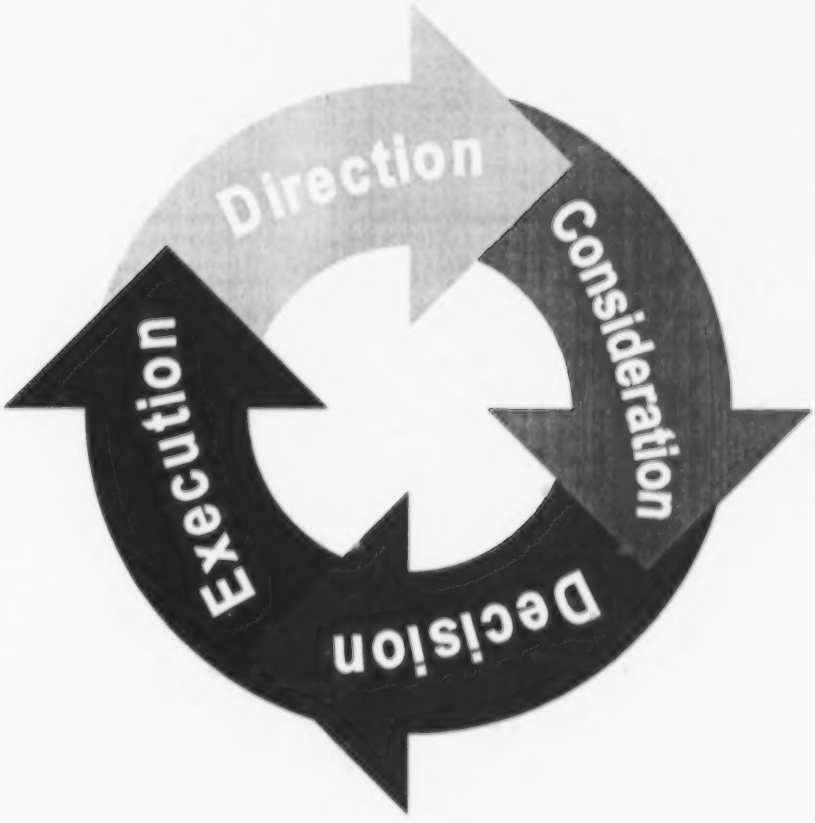

Figure 3-3: The Decision-Action Cycle

THE OPERATIONS PLANNING PROCESS

16. The Operations Planning Process (OPP) is a six-step process. There may be a tendency to view this process as a linear process that must be executed in assembly line fashion. On the contrary, it is a flexible process that generates consideration and reconsideration of the situation in order to produce the best plan from the resources available. The OPP covers the first three stages of the Decision-Action cycle. ISTAR contributes to the OPP by providing the intelligence necessary to create the best plan possible. The ISTAR system contributes to the OPP in the following ways:

a. **Receipt of Tasks**. The formation HQ normally receives its tasks in the form of a warning order,

operation plan, operations order or fragmentary order from the higher formation. It can also be that the situation has changed and the Commander recognizes that new tasks are implied from the situation on the basis of the higher commander's intent. Regardless of the source of the tasks, the receipt of tasks initiates a new planning cycle.

b. **Orientation**. The Commander conducts his mission analysis and prepares his guidance for the planning cycle. The Commander's guidance includes the Commander's Critical Information Requirements (CCIR). CCIR are divided in three parts: Priority Intelligence Requirements (PIR), Friendly Force Information Requirements (FFIR) and Essential Elements of Friendly Information (EEFI). At this stage the PIR are the most important elements of the guidance for the ISTAR effort. The COS or G3 may also prepare a planning directive at this stage. This planning directive may also contain direction that is of value in focussing the collection effort.

c. **Develop Courses of Action**. The staff develops courses of action (COA) for the formation based upon the information available. The G3 Plans is responsible for the development of the plan but each of the Bde staff sections and supporting staffs (FSCC, ASCC, ESCC) prepare their portions of the COAs at the same time. The IPB process contributes to the planning by providing an estimate of the enemy intentions. This estimate takes the form of enemy COAs developed by the G2 Plans. It also develops questions that ISTAR will answer where current databases lack detail. The ASC also advises the staff on the employment of ISTAR assets, in each of the COA. The staff then compares the COAs by means of a COA wargame. The G2 Plans contributes to the wargame by advising on employment of ISTAR assets and also on the terrain impacts on any given enemy or friendly COA.

d. **Decision**. The staff presents the results of the COA wargame to the Commander and seeks a decision on which COA to develop into the plan.

e. **Plan Development**. Another wargame is conducted to refine the selected COA and develop the Decision Support Template (DST), the synchronization matrix and the High Payoff Target List (HPTL). From these latter items, the Targeting Process produces the Attack Guidance Matrix (AGM). The AGM is an important input to the ISTAR planning process. The G2 Plans also contributes to this wargame by advising on the employment of ISTAR assets. The final result of this step is the production of an order.

f. **Plan Review**. This step of the process involves the coordination of the details of the plan with subordinate units. The G2 Plans coordinates the ISTAR plans of subordinate units.

INTELLIGENCE PREPARATION OF THE BATTLEFIELD

17. Intelligence Preparation of the Battlefield (IPB) is the continuous analysis of the enemy, weather and terrain in the area of operations. During planning, ISTAR assists the G2 Plans in the IPB process. It is a process that does not require the receipt of a new task to initiate. The process is continually updated based upon information collected. The ISTAR contribution to the four steps of IPB is:

a. **Step One—Define the Battlefield**. In step one the staff refines the AO and the AIR and defines the AI based upon the higher formation order and the Commander's initial planning guidance. The ISTAR CC reviews the existing ISTAR plan and begins to identify new tasks to support the new IPB cycle.

b. **Step Two—Describe the Battlefield Effects**. The G2 then begins to collect information about the battlefield or to update that provided from higher sources. The effects of terrain and weather on the

battlefield are evaluated. The G2 Plans conducts the terrain analysis with his Plans Team. At this point they identify questions about the environment that they cannot answer and request the information from the ASC. Collectors are tasked or information is sought from National sources or from higher or flanking formations. The G2 Plans begins the ISTAR Plan by selecting tentative Named Areas of Interest (NAIs).

c. **Step Three—Evaluate the Threat**. The G2 Plans assembles all available information about the enemy from available databases and uses it to prepare doctrinal and event templates. Gaps in knowledge are referred to the ASC by Requests for Information (RFI) or through an initial Information Collection Plan (ICP). The ASC takes these requests and initiates or redirects the collection effort in support of the planning process. As a result, ISTAR may begin conducting its part of the mission before the development of the COA. Information gathered is processed into intelligence and passed to the G2 Plans, who uses it to prepare doctrinal and event templates. The G2 Plans refines the NAIs based upon the Situation Templates (SITEMPs) and begins to prepare the High Value Target List (HVTL). The SITEMPs are provided to the G3 Plans in order to allow the G3 Plans to prepare the friendly COAs.

d. **Step Four—Determine Threat COA**. The G2 Plans prepares threat COA based upon the available information. The NAIs are further refined based upon the Event Templates for each enemy COA. The G2 Plans begins the formulation of the High Payoff Target List (HPTL). The Event Templates are used as the basis for the enemy actions during the COA and Plan Wargames.

SECTION 3
THE ISTAR PLANNING PROCESS

18. The ISTAR planning process begins when the formation is initially warned for operations. From then on it is a process of continuing to update the plan in response to direction. The direction comes to the ISTAR system in the form of the ICP and the ISTAR Plan.

INFORMATION COLLECTION PLAN

19. The G2 Plans develops Information Requirements (IRs) based upon the Commander's PIRs. These are then further developed into combat indicators. The responsibility for these indicators is then assigned to units of the Bde or to the ISTAR system as appropriate. The plan specifies the reports required and the time by which the information is required.[22] The complete ICP will not normally be appended to the Intelligence Annex. This is due to the potential damage resulting from compromise of the operations order. Sections may be distributed to the units for their action. An example of an ICP can be found at Annex A.

THE ISTAR PLAN

20. The ISTAR Plan consists of appendices to the Intelligence Annex to the operations order. It consists of the ISTAR Overlay and the ISTAR Matrix. The ISTAR Plan assigns responsibility for the observation of NAIs to ISTAR collectors and to Bde units according to the availability of assets and the tasks assigned as part of the operations order.

21. The ISTAR Plan begins with the identification of potential NAIs based upon the terrain analysis conducted during Step 2 of the IPB. These NAIs are placed upon the ISTAR overlay. They are not issued at this time since they are only terrain oriented and have no relation to the enemy. In step 3 of IPB the analysis of the enemy is

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[22] The Information Collection Plan is explained in B-GL-357-001/FP-001 *Intelligence Field Manual*.

applied to the terrain analysis. The NAIs are adjusted to conform to the COAs developed by the G2 Plans. This updated overlay is passed to the ASC so that an initial estimate of the allocation of ISTAR resources to the NAIs can be made.

22. In step 4 of the IPB the Event Templates are completed and the NAIs are further adjusted to conform to the expected movements of the enemy as estimated by the G2 Plans. The ISTAR Matrix is now developed based upon the estimated allocation of ISTAR resources prepared by the ASC. The G2 Plans uses this draft ISTAR Plan as he participates in the COA Wargame. The draft plan guides the employment of ISTAR assets during the wargame.

23. During the wargame the interaction of all the combat functions result in adjustments to the draft plan. In particular the requirement to identify targets for Fire Support and Manoeuvre units cause the NAIs to be adjusted, added or deleted. An updated ISTAR Plan is produced for each of the friendly forces COAs. These draft ISTAR Plans must be reviewed by the ASC to confirm that the ISTAR assets are still sufficient to accomplish the mission.

24. After the Commander has selected the COA to be developed into the plan, the ISTAR Plan is amended, if necessary, to accommodate changes made to the COA as a result of the guidance provided by the Commander. The COA is then wargamed again to develop the Synchronization Matrix, Decision Support Template and confirm the details of the plan. The ISTAR Plan is again adjusted to conform to any adjustments made to the plan.

25. After the Plan Wargame, Bde staff sections prepare their supporting plans for the publication of the operations order. The G2 Plans must coordinate the finalization of the ISTAR Plan with the FSCC to ensure that there are sufficient resources to identify targets with sufficient warning to allow them to be engaged. This process is explained further below.

26. The ISTAR Plan is finalized and attached as appendices to the Intelligence Annex. Examples of the ISTAR Matrix and Overlay are found at annexes B and C.

27. The ASC coordinates unit ISTAR plans on behalf of the G2. This coordination identifies gaps in the ISTAR coverage and allows

action to be taken to cover the gaps if possible. It also identifies the ISTAR priorities of subordinate commanders to the ASC, so that information collected that is particularly relevant to their battles, can be processed on their behalf.

SECTION 4
RELATED PROCESSES

THE TARGETING PROCESS

28. The Targeting Process is closely related to the ISTAR process as it identifies targets that when attacked will most disrupt the enemy's plan. It is characterized by four related functions known as Decide, Detect (including the requirement to track the target), Deliver and Assess. The Targeting Process is closely associated with the Intelligence Cycle. IPB provides much of the information for targeting in that it evaluates enemy capabilities and predicts the enemy COA with respect to battlefield conditions. ISTAR provides the assets to locate and identify the targets for engagement. Targeting links the Commander, the Collectors and the Engagement systems.

29. **Decide**. The Decide function is the cornerstone of the Targeting Process and requires close coordination between the Commander, the Intelligence, the Plans, the Operations and Targeting team elements. The process begins with the receipt of a mission, whether assigned by higher headquarters or deduced by the Commander. The Commander, with input from his staff, analyses the mission and considers the tasks that must be performed. Targeting priorities must be addressed for each phase or critical event of an operation. The G2 Plans prepares the High Value Target List (HVTL) as part of Step 3 of the IPB. In concert with the Fire Support planner, the G2 Plans selects those HVTs that most effectively disrupt the enemy and contribute to the success of the Commander's plan. These targets are then identified as High Payoff Targets (HPTs) and the High Payoff Target List (HPTL) forms the basis of the Attack Guidance Matrix (AGM). Only when ISTAR assets are assign to detect the target and Fire Support assets are allocated to engage the target, are HPTs entered into the AGM.

30. **Detect**. Detect is the next step in the targeting process. The ISTAR system is the main figure in this step as it coordinates the

effort to detect HPTs identified in the Decide function. To ensure there is no duplication of effort, specific direction is given to target acquisition systems capable of detecting HPTs. Information needs are expressed as PIRs and IRs. The Detect function is carried out through the execution of the Information Collection and ISTAR Plans. NAIs that were identified through IPB are identified as or adjusted to support target acquisition. Target Area of Interest (TAIs) are areas where the enemy will be engaged or attacked. If these coincide with NAIs previously identified through IPB, then the NAI will be redesignated as a TAI. If not, then the TAI must be added to the ISTAR plan in order to ensure that the target can be observed. NAIs and TAIs linked to the AGM must be annotated on the ISTAR plan to ensure that it is clear that the target is on the AGM. The AGM specifies the timeliness and accuracy required by the engagement system. The ISTAR system must deliver the intelligence in time and with the accuracy required to make the engagement effective.

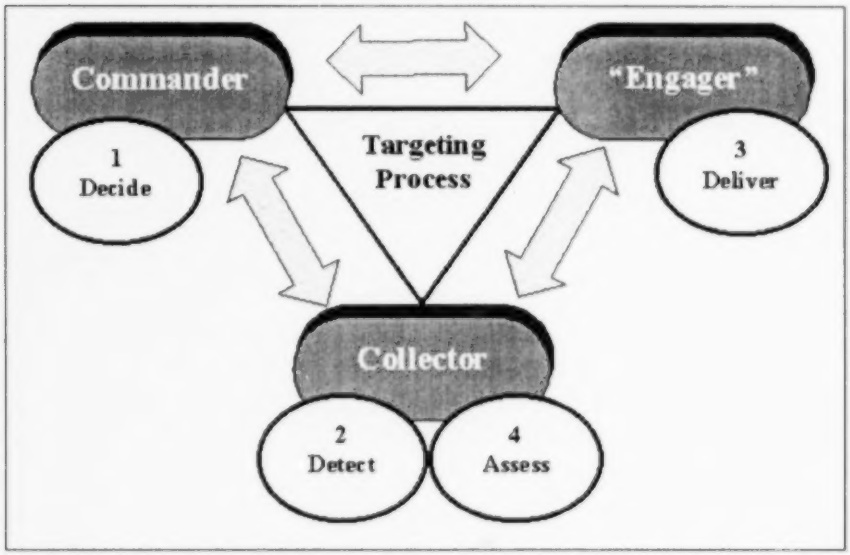
31. **Deliver**. The Deliver function of the targeting process executes the AGM and supports the Commander's battle plan once the HPTs have been located and identified. The Deliver function provides the framework for the efficient employment of Fire Support assets. The attack of targets must satisfy the attack guidance developed during the Decide function.

32. **Assess**. Combat assessment is the determination of the effectiveness of force employment during military operations. The ISTAR Plan must allocate or reallocate assets to conduct the assessment once a target is engaged. Combat assessment is composed of three elements as follows:

a. Battle Damage Assessment (BDA) is the timely and accurate assessment of damage resulting from the application of military force, either lethal or non-lethal, against a target. BDA contributes to the estimate of the enemy's combat effectiveness, capabilities and intentions.

b. Munitions Effect Assessment (MEA) is used as the basis for recommendations for changes to increase the effectiveness of tactics, methodology, weapon system selection, munitions and weapon delivery patterns.

c. A recommendation for re-attack considers the requirement for another attack if the desired effect



on the target has not been achieved.

Figure 3-4: The Targeting Process

SECTION 5
ISTAR RELATIONSHIPS

33. The ISTAR system produces intelligence from data provided by the collectors. While technology plays a large role in the ISTAR process, it is primarily a human process. Knowledge is achieved through the analysis that is performed within the ASC. The G2 is ultimately responsible for the advice given to the Commander and for predicting the enemy's intentions. The ASC is responsible for the analysis that results in Red and Brown SA. This analysis relies upon the input of the collectors coord cells and other elements of the Bde HQ. Otherwise, information cannot be elevated to knowledge. It is the human process of analysis that creates knowledge and understanding. The relationship amongst these elements is critical to the quality of the analysis produced by the ISTAR system.

COLLECTOR MANAGEMENT

34. The ISTAR CC is responsible for managing the collection efforts of the formation through the initial tasking and the dynamic retasking of collectors in support of the collection effort. These efforts include the collectors integral to the formation and those placed under its control. The ASC coordinates the collection efforts throughout the formation on behalf of the G2. This coordination function is executed by consolidating the unit ISTAR plans and incorporating them into the formation plan. The ASC also requests information from national, higher and flanking sources and processes the information received from these sources.

FIELD ARTILLERY

35. The Field Artillery is at the heart of the Fire Support system in the Brigade. On behalf of the Brigade Commander, the CO of the Field Artillery Regiment has overall responsibility for the "Engagers" in the Targeting Process. The Targeting Process is what links the Collectors and the Engagers to the Commander. The relationship between ISTAR and artillery has three facets: the ISTAR-Artillery Intelligence relationship, the ISTAR-targeting relationship (described above) and the ISTAR-fire support relationship.

36. **ISTAR and Artillery Intelligence**. Artillery Intelligence is represented in the ISTAR CC in the Loc Arty coord cell. The Brigade Artillery Intelligence Officer (BAIO) is co-located with the Loc Arty coord cell to provide the analysis and direct communications to the FSCC and, in some cases, to the firing units.

37. **ISTAR and Fire Support**. The ISTAR system supports the Fire Support system by providing information for the effective conduct of fire support beyond close support range. ISTAR provides intelligence to the FSCC through the COP. Once identified by the FSCC as a target, the FSCC may need additional information or may require ISTAR support for target assessment. The decision to allocate ISTAR resources in support of the fire support plan must be taken with due regard for the availability of assets beyond those committed in the ISTAR Matrix. In the event of a conflict, the decision must be referred to the Commander for a decision.

ENGINEERS

38. Engineer reconnaissance is a very specialized task. Engineers provide the assets that conduct the reconnaissance as well as the specialized skills to conduct the analysis of the reconnaissance reports. The products of engineer reconnaissance, which result in information related to both the enemy and the terrain, are essential to the COP. Copies of all engineer reconnaissance reports must be submitted to the ASC for inclusion in the COP. Since the ASC is responsible for Red and Brown SA, the ASC must coordinate closely with the ESCC to ensure that the results of Engineer analysis are accurately incorporated into the COP and are accurately disseminated through the Intelligence system.

OTHER UNITS

39. Combat arms, combat support and combat service support units collect information as part of their own conduct of operations. Some of this information, such as Captured Enemy Equipment (CEE) and Captured Enemy Documents (CED), is a direct product of the execution of their own missions. Information is also collected in as a result of an information collection task issued as part of the formation operations order. Additionally, information can be collected incidental to their operations, such as information on routes or civilian population movements that can be collected during sustainment operations.

40. **Direct Product**. All combat information that is a direct product of combat operations must be forwarded to the ASC as soon as possible. The HUMINT Cell has the trained specialists and analysts required to exploit this information. While appropriately trained personnel at unit level may conduct tactical questioning, this should not impede the exploitation of Prisoners of War (PWs), CEE and CED at the formation level. The value of intelligence gained from these sources is greatly improved by rapid passage of this information to the ASC. This is achieved by rapidly transferring PWs, CEE and CED to the appropriate Collecting Points. The HUMINT section deploys teams in support of particular units as the need arises.

41. **Tasked Product**. The ASC is responsible for the coordination of ISTAR plans on behalf of the G2. Specific

information collection tasks are submitted to the G2 for G3 approval and inclusion in the operations order. Reports from these tasks must be submitted to the ISTAR CC upon completion of the task or detection of the enemy, as the case may be, so that it can be incorporated into the COP as soon as possible.

42. **Indirect Product**. The ISTAR CC monitors the command net and incorporates combat information into the analysis. Units should also submit reports directly to the ISTAR CC if they detect anything that may affect the execution of the Commander's plan. This is not limited to information that may have a negative effect. Units must also report when they detect opportunities that may lead to a quicker more effective achievement of the Commander's intent. Units may provide information that reveals an opportunity that may be exploited once the information is integrated with information from other sources.

SECTION 6
ISTAR AT UNIT LEVEL

43. The ISTAR system combines and replaces the information gathering and analysis functions within the formation. The intelligence cycle, surveillance planning and reconnaissance planning are now all united in the ISTAR system. The discussion in this manual is focussed at the brigade level, but ISTAR processes function at the unit level as well.

RESOURCES

44. At unit level, integral specialized ISTAR assets are limited. Infantry battalions and armour regiments have integral close reconnaissance platoons and troops but other units do not. The main source for the ISTAR systems of all units is combat information collected as part of the execution of a unit's normal activities.

45. When necessary, the formation HQ may reinforce a unit with dedicated ISTAR assets in order to accomplish a special task. For example, an infantry battle group may be tasked as a breaching force for a brigade attack. In order to plan for the breach, the battle group Commander may need detailed imagery of the proposed breach. A UAV section may be allocated to the battle group commanding officer

for the planning phase. The section may remain in support for the execution if the brigade determines that it is necessary to allow the battle group commanding officer to monitor the breach throughout the operation.

ORGANIZATION

46. Units have few resources to dedicate to specialised ISTAR capabilities. Existing resources must be tailored to the task. Since the heart of any ISTAR system is the analysis, the Intelligence Section is the core of the ISTAR CC at unit level. The Intelligence section must be provided with the CIS and the personnel to fulfill the task.

HIGHER FORMATION INTELLIGENCE LINK

47. While operating within a Brigade Group, the units have access to the COP, produced and updated by the formation ISTAR CC. As a result, there is no requirement for the unit to possess a dedicated higher formation intelligence link. Unit ISTAR CCs can query the COP databases for the information that they require. Where the information is unavailable in the databases, then Requests for Information (RFI) can be submitted to the formation HQ. This allows the unit to gain access to formation assets as they are available.

ANNEX A
THE INFORMATION COLLECTION PLAN

DTG: 051530Z JAN00

MISSION: OP PROMETHEUS

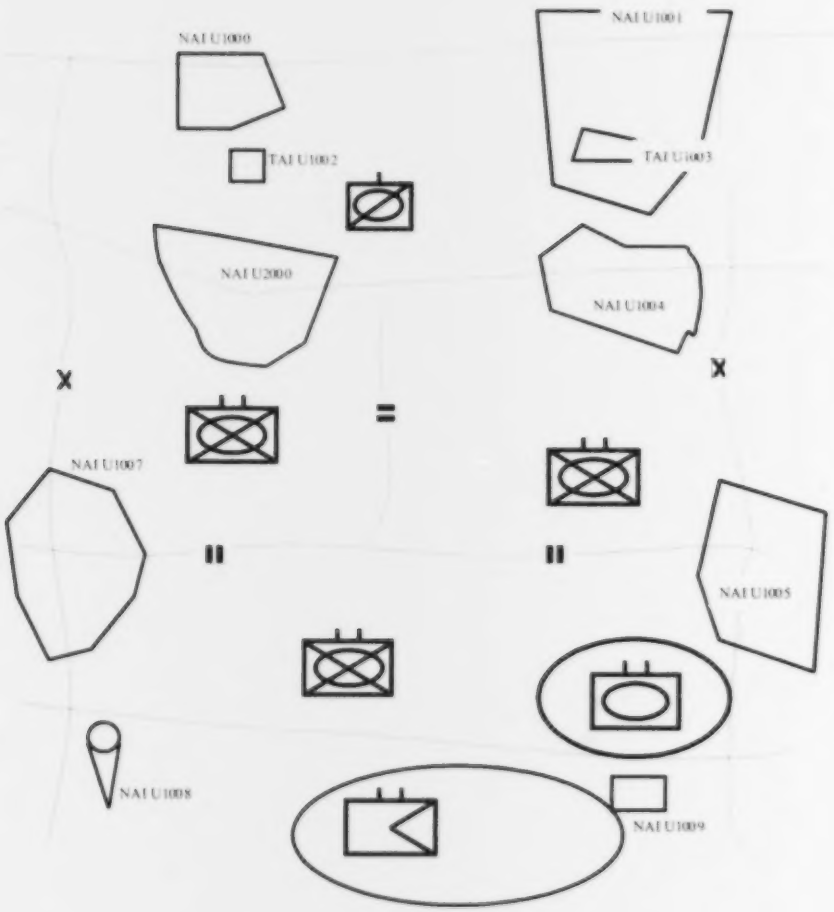
PRI	PIR	IR	INDICATORS	UNIT A	UNIT B	UNIT C	PTLS	RECCE	EW	UAV	FLANKING	Last Time Information is of Value (LTIOV)	REPORTS	REMARKS
1	PIR#1 Where will 280 MRR cross the river?	IR#1 Does 280 MRR have div level br eqpt?	a. TMM at NV 2645					x	x	x	x	260600Z	RECCEXREP	NAI W1003
			b. Div engr plant in area NV 2952	x		x		x	x	x	x	260400Z	RECCEXREP	NAI W1002
		IR#2 In what condition are the brs in area NV 2549 to NV 3056?	a. Engr recce along RIVER ASTRIX		x		x		x	x		As reported	CONTACT	NAI W1004 - Two SB Pils
			b. Air recce N of BROUCKSELE		x	x	x	x	x	x	x	As reported		Co-ord with allied bde to right
2	PIR#2 When will 280 MRR cross the river?	IR#1 Is the obs clearing eqpt of 280 MRR back up to str?	a. Mine rollers in fwd det					x	x	x	x	260400Z	EO	
			b. Loc, dispn of 2S1 btys in vicinity RIGAL					x	x	x	x	260400Z	EW/EO	Comd to req additional UAV msns
3	PIR #3 In what str will 280 MRR cross the river?	IR#1 Where is the assessed Div immed obj?	a. Loc, dispn of T-72 Bns		x		x	x	x	x	x	260400Z	CONTACT/EO	Three hel recce msns aval as of 251200Z
			b. Loc, dispn of 2S3 btys		x		x	x	x	x	x	As indicated by higher-260300Z	EW/EO	NAI W1003
			c. Loc, dispn of 81 Indep Tk Bn					x	x	x	x	As reported	EW/EO	

ANNEX B
THE ISTAR MATRIX

ISTAR MATRIX EXAMPLE (FMN LEVEL)								
Serial	**NAI**	**Location**	**Description**	**Event**	**Indicator**	**Report Period**	**Responsibility**	**Remarks**
1	W1000	NV 3732	River ASTRIX	Recce	BRDM2/T-72	H-6 hr	1 R22eR	
2	W1002	NV 3329	Bridge and houses	Recce	BRDM2/T-72	H-6 hr	1 R22eR	
3	W1003	NV 2240	Grassy knoll	Recce	BRDM2	H+3 hr	3 RCR	
4	W1004	NV 2545	Crossroads and houses	Recce	BRDM2/T-72	H hr	UAV M120	Includes SE approach from RACKSVILLE NV4129
5	W1005	NV 3030	Road	Recce	BRDM2/T-72	H+1 hr	UAV M120	3 RCR mission H+1 hr to H+2 hr
6	W1006	NV 2026	Ravine and area to bridge	Recce	MTLB/Engr vehs	H+3 hr	UAV M120	1PPCLI area
7	W1007	NV 2133	Crossroads and houses	Recce	MTLB/Engr vehs	H+3 hr	1 PPCLI	
8	W1008	NV 1929	Church and houses	Recce	MTLB/BTR 80	H+4 hr	1 PPCLI	
9	W1009	NV 3627	Autobahn	Recce	T-72/BTR 80	H+5 hr	UAV M121	Potential c atk force
10	W1010	NV 4529	Kaserne	Surv	T-72/BTR 80 Comd variants	H+5 hr	EWCC	As per IR#13
11	W1011	NV 3544 to NV 2632	NE approach	Surv	BRDM2/T-72	H+1 hr	Recce Sqn	As per IR#12. Op O states no move before H-6 hr

ISTAR MATRIX (UNIT LEVEL)								
Serial	**NAI**	**Location**	**Description**	**Event**	**Indicator**	**Report Period**	**Responsibility**	**Remarks**
1		NV 2944 to NV 2230	PL DUKE	Recce	BRDM2	H-10 hr	Recce Pl	Woodline to East
2		NV 1635	Ravine	Recce	BRDM2	H-10 hr	Ptl 1A M Coy	
3		NV 1732	Defilade	Recce	BRDM2	H-10 hr	Ptl 2A O Coy	
4	W1003	NV 2240	Grassy knoll	Recce	BRDM2	H+3 hr	N Coy	
5		NV 2631	Entrance to defile and house	Recce	BRDM2/T-72	H+2 hr	O Coy	Only on order
6	W1005	NV 3030	Road	Recce	BRDM2/T-72	H+1 hr	UAV M120	Re-inforcements from SE

ANNEX C
THE ISTAR OVERLAY



CHAPTER 4
INFORMATION MANAGEMENT

Nothing helps a fighting force more than correct information. Moreover it should be done in perfect order and done well by capable personnel.

Che Guevera 1963

SECTION 1
COMMUNICATIONS AND INFORMATION SYSTEMS

1. The ISTAR system is enhanced by Communications and Information Systems (CIS). While the ISTAR system functions effectively using voice communication nets, map overlays and manual distribution system, the greatest synergy is achieved by an ISTAR system supported by robust CIS. A particular necessity is the ability to distribute and display the COP in a digital format.

2. The COP is the product that delivers SA and contains all the elements of SA. The ISTAR CC produces Red and Brown aspects of SA, while the G3 and G4 have responsibility for the Blue SA. The COP displays all three aspects together, so that decisions can be made based upon full SA.

SECTION 2
INFORMATION TECHNOLOGY

3. Information technology (IT) advances have provided many tools including displays, storage, databases, archival search and retrieval, target recognition, collectors and networks. IT is the backbone upon which ISTAR depends to achieve its mission and serves the ISTAR system in two ways. It is the architecture upon which the information is passed between and amongst HQ. It also has a role in the processing of data.

4. IT systems are not always technologically compatible. There remains a necessity for human input to the system, either as a bridge between incompatible systems or to process information and turn it into knowledge. In the end, the products of the ISTAR system contribute to the understanding gained by the Commander prior to decision-making.

SECTION 3
INFORMATION PROTECTION

5. Information protection is an aspect of Def IO. Information protection measures begin with an assessment of risk in relation to the mission. Protection of information within the ISTAR system is essential to the successful mission accomplishment since the ISTAR mission is the collection and processing of information. Within the ISTAR System, information protection includes the following functions:

a. **Operations Security (OPSEC)**. Operations security is defined as "The process which gives a military operation or exercise appropriate security, using passive or active means, to deny the enemy knowledge of the dispositions, capabilities and intentions of friendly forces."[23] ISTAR sub-units employ OPSEC measures to protect their own systems while contributing to the OPSEC of the force by detecting enemy information collection efforts.

b. **Protection of Physical Systems**. The ISTAR system includes a number of sensors that are often deployed without local security. The ISTAR CC must be aware of the threats to these sensors to prevent destruction or loss to the enemy of critical resources.

c. **Protection of CIS**. Protecting CIS from enemy intrusion, disruption, and destruction is a fundamental step in an overall protection approach. Because of the complexity and fragility of CIS, the plans of a unit should include procedures for operating with degraded CIS and to revert to manual processes.

d. **Electronic Protection Measures (EPM)**. Some EPM, such as frequency hopping, are built into

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[23] NATO AAP 6(U)

modern CIS. Other Communications Security (COMSEC) and Signal Security (SIGSEC) measures must be included in orders. The employment of these measures must be balanced against the inherent need of the ISTAR unit to communicate to accomplish its mission, due to the dispersion of ISTAR assets over the battlefield.

e. **Defensive Information Operations**. Commanders must also be sensitive to enemy attempts at deception and propaganda. A resourceful enemy may employ propaganda to predispose a Commander and his staff toward a specific course of action and then exploit that mindset with a deception operation.

SECTION 4
INFORMATION DISTRIBUTION

6. Information distribution is one of the greatest challenges faced by the ISTAR system. Collectors are dispersed across the battlefield and must communicate with their collector coord cell or the ISTAR CC in order to pass reports. The distances involved necessitate the use of radios to pass data. Current radio systems, and those expected to come into service in the near future, do not possess sufficient bandwidth to transmit all the imagery that modern electro-optical systems can collect and the geomatic information required by units. Thus information distribution comprises not only the means of distribution but also the decisions made about the amount and format of the information distributed.

7. Communications between collectors and ISTAR CC is predominantly by radio. The characteristics of the collectors demand that they be distributed across the AO in order to collect data on the enemy. Modern warfare in a View 1 scenario is expected to continue to be mobile, prohibiting hard wire connections between the collectors and their coord cells. In View 2, hard wire connections would be exposed to sabotage and interference and hence would be no more secure. Because of bandwidth limitations within radio communications, there must be consideration taken during the planning process as to the form of reports and the information they contain. This implies that sensor operators must be trusted to make

decisions and conduct low level analysis and only send the information that is necessary to contribute to Red or Brown SA.

8. Satellite Communications (SATCOM) are vital to the execution of ISTAR. The ISTAR CC requires SATCOM to link to national/strategic level capabilities to obtain information for the Commander and to allow split based operations to take place. Split based operations allow portions of the ISTAR system to remain out of the theatre of operations while still providing direct support. This is critical to the analytical effort. SATCOM (high bandwidth) is critical to allow the passage of data out of theatre, for additional analysis to occur and knowledge to be provided back. In View 2 operations, individual collectors or collector systems likely require SATCOM to allow collector data and information to be passed over extended distances with each other and the ISTAR CC. Regardless of View 1 or View 2, the ISTAR CC must have access to dedicated SATCOM.

9. The ISTAR CC also depends upon the combat information collected by manoeuvre, fire support, combat support and combat service support units in order to develop a complete picture of the enemy situation. While these units do not report directly to the ISTAR CC, the ISTAR CC monitors reports sent over command and administrative nets and the information reported is incorporated into the analysis. Intelligence sections of these units should also submit copies of patrol reports, Intelligence Summaries (INTSUMs) and Intelligence Reports (INTREPs) that they produce to the ISTAR CC.

10. There are certain high priority items that must be dissiminated with the minimum of analysis and handling. These items include air defence warning information including information collected by collectors not dedicated to air defence, such as ESM. There is also targeting data collected in accordance with the AGM that must be passed to the FSCC so that timely action can be taken. These items must be forwarded as quickly as is possible from the ISTAR CC to the user. There may also be a requirement for direct links from the collectors to the engagers. The information can then be analyzed and incorporated into the all-source product that forms the COP.

SECTION 5
TECHNOLOGICAL ARCHITECTURE

11. **Common Operating Picture**. COP is the representation of SA produced through the use of modern CIS. The COP includes Blue, Red and Brown SA. In the past, the COP could be represented by a series of acetate overlays on a map. The time required to produce, reproduce and distribute these overlays prevented this practice from being of value once the planning phase had ended. Through distributed databases, global positionning systems (GPS) and advanced CIS, timely and accurate distribution of this information is possible. It is the responsibility of the ISTAR CC to update the Red and Brown SA portions of the COP on a regular basis.

CHAPTER 5
COUNTER ISTAR

When capable, feign incapacity, when active, inactivity. When near, make it appear that you are far away: when far away, that you are near. Offer the enemy a bait to lure him; feign disorder and strike him.

Sun Tzu, The Art of War

GENERAL

1. Counter ISTAR (C-ISTAR) encompasses all activities directed at reducing the ability of the enemy's ISTAR assets to collect information on friendly forces. C-ISTAR is a combination of Offensive and Defensive IO. It also relies upon manoeuvre and fire support.

PURPOSE

2. The purpose of C-ISTAR is to assist in the attainment of information superiority by denying the enemy's ability to collect information against friendly forces.

ROLE OF ISTAR

3. The primary role of the ISTAR system in C-ISTAR is to be an information collector. In this role, the ISTAR plan must concentrate its efforts to identify enemy ISTAR assets so that they can be engaged for disruption or destruction. This is an essential prerequisite to achieving information superiority.

CONDUCT

4. C-ISTAR is not coordinated by the ISTAR CC. C-ISTAR is a Command function, overseen by the G3, and cannot be viewed as a separate battle. It is integral to the operation plan and C-ISTAR tasks can be assigned to any unit in the formation. It also has deep, close and rear aspects:

a. In deep operations, C-ISTAR targets information collectors such as ESM and UAV in order to prevent their employment against friendly forces.

b. In close operations, C-ISTAR aims to strip the reconnaissance forces from the main echelons and blind the eyes of the enemy. Reconnaissance forces can be destroyed by physical destruction or be disrupted by Electronic Countermeasures (ECM) or deception.

c. In rear operations, C-ISTAR targets enemy Special Purposes Forces (SPF) that might be operating in the rear areas.

5. C-ISTAR must be executed within the context of the overall IO plan. It is counter productive to dedicate resources to a deception effort if the C-ISTAR battle then destroys and degrades the ability of the enemy to receive and believe the deception. Similarly a C-ISTAR effort in a particular area may give the enemy the impression that the main effort is coming in that area. If this is the case, then the effect of the IO plan is undermined. If the main effort is somewhere else, the C-ISTAR effort has been successfully used in support of a deception effort.

6. The C-ISTAR battle should be reflected throughout the targeting process and in the AGM. Fire support resources should be dedicated to achieving information superiority by destroying enemy ISTAR systems. Our ISTAR system contributes to the targeting process in its responsibility for the Detect function of the targeting process.

7. The ISTAR CC also supports the C-ISTAR battle by being the expert in enemy ISTAR systems. This is similar to the role played by the COs of the Artillery and Engineer Regiments in providing advice to the staff. The CO and staff of the ISTAR unit should have an intimate knowledge of the enemy ISTAR capabilities and should provide advice to the staff on how to defeat enemy ISTAR systems.

CHAPTER 6
OFFENSIVE, DEFENSIVE AND DELAYING OPERATIONS AND TRANSITIONAL PHASES

The passage from the defensive to the offensive is one of the most delicate operations of war.

Napoleon

SECTION 1
GENERAL[24]

1. Manoeuvre warfare theorists have established the concept of "reconnaissance pull" as one of the defining characteristics of manoeuvre warfare. The concept is contrasted with the alternative of "command push". Command push is considered to be characteristic of attrition warfare, which is the execution of plans based upon an estimate of the enemy's location and intent. Reconnaissance pull requires flexibility in the estimate and orders to allow the reconnaissance forces to locate the enemy and then have manoeuvre and fire support forces attack the enemy based upon the results of the reconnaissance efforts.

2. Central to reconnaissance pull are the concepts of "surfaces" and "gaps". A surface is a location where the enemy has concentrated his strength and thus it is the area that would require the most combat power to achieve a breakthrough. A gap is a location where the enemy is weaker and thus represents an opportunity for success without a great expenditure of effort. The key to reconnaissance pull is the identification of gaps and the commitment of manoeuvre forces to exploiting those gaps.

3. Manoeuvre theory had its origins in the writings of Sir Basil Liddell-Hart after the Second World War. It was the subject of intense study during the 1980s, in an effort to determine how to minimize the overwhelming advantage in mass possessed by the Warsaw Pact forces in Central Europe. Most of the theorists were writing about

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[24] All operations are addressed in more detail in B-GL-300-002/FP-000 *Land Force Tactical Doctrine*.

warfare conducted without the Information Age technologies now being introduced into modern armies.

4. The ISTAR system allows an evolution of the concept of reconnaissance pull. ISTAR pull results from the synergy inherent in the ISTAR system. Reconnaissance forces are cued to areas based upon data collected from satellite imagery, moving target indicators (MTI) from synthetic aperture radar (SAR), SIGINT from ESM, and imagery from air reconnaissance and UAV overflights. The advantage gained by achieving information superiority allows ISTAR pull to achieve success beyond the capabilities envisioned by the early manoeuvre theorists.

5. The essential task of the ISTAR system in all warfighting operations is the identification of surfaces and gaps, in order to permit the exploitation of that knowledge and to cause the defeat of the enemy with the minimum of effort.

SECTION 2
OFFENSIVE OPERATIONS

6. **General**. The principal purpose of offensive operations is to defeat the enemy, by imposing our will on him through the application of focused violence against his weaknesses, not only on his forward elements but also throughout his depth. Offensive operations defeat the enemy either by breaking his cohesion, by physical destruction or both. Destroying the coherence of his operations and fragmenting and isolating his combat power causes the real damage to the enemy's will. By so doing, the enemy's capability to resist is destroyed. Other subsidiary purposes of offensive action are to:

a. gain information;

b. deprive the enemy of resources;

c. deceive or divert the enemy from the main effort;

d. fix the enemy to prevent him from regrouping or repositioning his forces;

e. pre-empt the enemy in order to regain the initiative;

f. disrupt enemy offensive action; and

g. seize ground.

TYPES OF OFFENSIVE ACTION

7. There are a number of offensive actions, which may flow from one to another, but all either lead to, or stem from, the actual attack. Some can even do both. An attack may lead to exploitation, which may take the form of a continuation of the attack or become a pursuit. It is also possible for a pursuit to be followed by an attack. There are a number of different types of offensive actions with specific purposes:

a. **Hasty Attack**. "A hasty attack is an attack in which preparation time is traded for speed in order to exploit an opportunity" (A-AD-121-AAP/JX-001). It seeks to take advantage of the enemy's lack of preparedness, and involves boldness, surprise and speed in order to achieve success before the enemy has had time to improve his defence posture.

b. **Deliberate Attack**. "A deliberate attack is a type of offensive action characterized by planned and coordinated employment of firepower and manoeuvre to close with and destroy or capture the enemy" (A-AD-121-AAP/JX-001). When a well-prepared enemy defence must be defeated, a deliberate attack may be required. The emphasis is on preparation, at the expense of speed and time, therefore methods other than speed will be required in order to achieve surprise.

c. **Counter-attack**. The purpose of a counter-attack is to defeat an enemy who becomes vulnerable by his own offensive action, by revealing his main effort or creating an assailable flank. It is likely to be conducted as part of a defensive operation by a reserve or lightly committed forward elements and it affords the defender the opportunity to create

favourable conditions for the commitment of combat power and a switch to offensive action.

d. **Spoiling Attack**. The spoiling attack is similarly directed at enemy offensive operations but with the limited aim of disruption. It attempts to strike the enemy while he is most vulnerable or while he is on the move prior to crossing his line of departure. A spoiling attack is pre-emptive in nature, as it attacks the enemy's plans, and hence, his cohesion. When the situation permits however, commanders can exploit a spoiling attack like any other attack.

e. **Reconnaissance in Force**. The purpose of a reconnaissance in force is to compel the enemy to disclose the location, size, strength, disposition or intentions of his force by making him respond to offensive action.

f. **Raid**. The wider purpose of a raid is to disrupt the enemy. More specifically, a raid is carried out to destroy or capture a vital enemy asset.

g. **Feint**. The purpose of a feint is to deceive. It aims to fix the enemy by distracting him and, if necessary, engaging him in combat in order to support the development of the main effort elsewhere on the battlefield.

h. **Demonstration**. The purpose of a demonstration, in contrast to that of a feint, is to distract the enemy's attention without seeking combat. Demonstration forces use firepower, manoeuvre and command and control warfare to support a deception plan. It should also be aimed at a vital sector of the enemy's defences if he is to be successfully misled.

8. **Tasks**. ISTAR tasks in offensive operations are related to the acquisition of information. The tasks do not differ greatly depending on the type of offensive operation conducted. ISTAR tasks in the offence include:

a. locating the enemy's main defensive area;

b. identifying gaps where the enemy weakness can be exploited for the break-in battle;

c. locating the enemy counter-attack forces and reserves;

d. identifying command relationships between units in the main defence in order to exploit unit boundaries;

e. identifying key command and control communications networks to assist the IO battle;

f. locating minefields, obstacles and gaps in them;

g. picketing objectives, lanes and gaps;

h. identifying forces in depth and detecting movement that might threaten the attacking forces;

i. identifying routes for exploiting forces; and

j. evaluating the effectiveness of a feint or demonstration.

9. **Exploitation**. Normally the Reconnaissance Squadron screens forward of manoeuvre units in offensive operations. As the attack turns to exploitation, a decision must be made either to pass the Reconnaissance Squadron through the objective to maintain contact with the enemy or to pass the reserve through to exploit. The ISTAR system must employ complementary assets to ensure that contact is maintained through the transition so that an exploitation does not turn into an advance to contact.

10. **Coordination**. Many ISTAR assets need to be located close to the manoeuvre troops in order to achieve their missions. As a result, there is a requirement to coordinate terrain management and road movement with the other units to ensure that adequate space is allocated to ensure that support can be maintained throughout the attack.

SECTION 3
DEFENSIVE OPERATIONS

11. **General**. Defensive operations are normally undertaken when the enemy has the initiative, to prevent him from seizing terrain or breaking through into a defended area. They aim to break the enemy attack, destroy his forces and stop him from accomplishing his aim and, in so doing, to establish the conditions for regaining the initiative through offensive action. A defensive operation may be required to:

a. destroy the enemy's offensive capability and cause his attack to fail;

b. fix the enemy in order to allow friendly forces to strike elsewhere;

c. gain time in order to complete the preparation for a counter-offensive; or

d. retain terrain and prevent the enemy from breaking through.

12. Although defensive operations may take a wide variety of forms, they can essentially be divided into two broad categories:

a. **Mobile Defence**. Mobile defence focuses on the destruction of the attacking force by permitting it to advance to a position that exposes it to counter-attack and envelopment. The emphasis is on defeating the enemy rather than retaining or retaking ground. Mobile defences employ a combination of offensive, defensive and delaying action necessitating the forward deployment of relatively small forces and the use of manoeuvre supported by fire and obstacles to seize the initiative from the attacker after he has entered the defended area.

b. **Area Defence**. Area defence focuses on the retention of terrain by absorbing the enemy into an interlocked series of positions from which he can largely be destroyed by fire. The emphasis here is on retention of terrain or its denial to the enemy.

13. **Stages of the Defensive Battle**. The defence is a single battle, fought in two stages. These stages are:

a. covering force battle; and

b. the main defence battle, including countermoves (reinforcing, blocking and counter-attacking).

14. **Tasks**. The tasks of the ISTAR system in the defence are:

a. identify the enemy main effort and avenues of approach;

b. identify weakness in the enemy formation, thereby providing opportunities to attack the enemy's cohesion;

c. identify the location and avenues of approach of the second echelon forces;

d. support deep operations by detecting targets in accordance with the AGM; and

e. coordinate surveillance in the rear area.

15. **Coordination**. In the covering force stage, ISTAR assets may be deployed in the covering force area. Terrain must be allocated in the covering force and the main defensive areas for ISTAR collectors. Passage of lines for withdrawing collectors must be coordinated. While the coordination of movement of collectors is the responsibility of parent units, the Collection Manager must be involved in this process. This is to ensure that the effects on the Information Collection Plan and ISTAR Plan are taken into consideration and that other collectors can be tasked to cover gaps during the movement.

SECTION 4
DELAYING OPERATIONS

16. **General**. A delaying operation is "an operation in which a force under pressure trades space for time by slowing down the enemy's momentum and inflicting maximum damage without, in

principle, becoming decisively engaged" (A-AD-121-AAP/JX-001). It is likely to be carried out in less than ideal conditions; the air situation may well be unfavourable and the initiative tends to be with the enemy. Nevertheless, in order to enhance the chances of success, every opportunity should be taken to initiate aggressive action, to seize the initiative from the enemy and to force him to adopt a defensive posture. This type of operation is arguably the most difficult to conduct and needs to be thoroughly understood by all involved. A delaying operation is likely to be conducted in one of the following circumstances:

a. as a covering force for defending or withdrawing main bodies;

b. the advance guard or covering forces when encountering superior forces;

c. an economy of force operation conducted to hold an enemy attack on a less critical avenue of approach;

d. a deception measure to set up a counter-attack; and

e. as part of a mobile defence.

CONDUCT

17. The delay cannot be broken down into a series of distinct phases. It is a fluid battle that is characterized by certain key events.

18. **Disengagement**. Troops withdrawing from a position must attempt to break contact with the enemy. This can be achieved by withdrawing through a position occupied by another unit, or suddenly breaking off the engagement when the enemy is unable to follow up immediately. ISTAR can assist in the disengagement by identifying enemy forces before friendly forces are fully engaged. This allows fire support assets to be brought to bear in order to assist the disengagement of the delaying force. ISTAR can also assist by identifying enemy approaches and friendly withdrawal routes.

19. **Breaking Contact**. The move of the delaying force into an area where another force takes over responsibility is a critical

operation, especially if the force has been unable to disengage. The overall Commander specifies a handover line. The ISTAR system supports these events through the provision of accurate information on dispositions of the enemy. This provides the Commander with a better idea of when to break contact and the resources that need to be allocated to assist in the breaking of contact.

20. **Employment of Reserves**. Reserves are important for the maintenance of the cohesion and continuity of delaying operations particularly where the enemy has been able to outflank or to penetrate through gaps between delaying force elements. ISTAR provides the Red SA, which gives commanders the information they need to make good decisions on when and how best to employ reserves. Reserves can be given the following tasks:

a. **Blocking**. Containing the enemy in the area where insufficient forces have previously been deployed.

b. **Counter-attacks**. Normally, these will have limited objectives. It may be necessary to use reserves to counter-attack into gaps or in order to achieve disengagement of heavily committed forces.

c. **Covering Actions**. Reserves may also be used in prepared positions to cover withdrawing forces in order to enable them to continue the engagement on more favourable terrain.

21. **Coordination**. ISTAR assets normally withdraw in concert with the delaying force. They may be deployed to screen the movement of the delaying force as it hands responsibility over to another force. Alternately it may be supporting the delaying force but withdrawing in advance. Care must be taken not to interfere with the operations of the delaying force but ISTAR assets should not be sacrificed in an effort to preserve the combat power of the delaying force.

SECTION 5
TRANSITIONAL PHASES

22. **General**. The Offence, Defence and Delay are the principal operations in warfighting. The linkage between these different

operations is usually achieved by executing a transitional operation. The successful execution of a transitional phase leads to:

a. the ability to make a transition between phases without a loss in tempo;

b. the forces taking over the battle having the most up to date information;

c. fluid movement;

d. fire control so as to use all weapons to further the aim and to avoid fratricide; and

e. quick regrouping.

23. There are five transitional phases:

a. advance to contact;

b. meeting engagement;

c. link-up;

d. withdrawal; and

e. relief.

ADVANCE TO CONTACT

24. **General**. In the advance to contact the Commander seeks to gain or re-establish contact with the enemy under the most favourable conditions for the main force. The advance to contact is always executed in preparation for a subsequent operation, such as an attack, and is terminated when the main body is positioned in accordance with the Commander's plan. Subsequent operations are determined by the mission assigned to the main force. This may also be determined from the posture of the main body when contact is made with the enemy.

25. The principal role of the ISTAR system in the advance to contact is to locate and identify the enemy as quickly as possible so

that transition to the offence can occur. This is mainly achieved by screening with the Reconnaissance Squadron. Since the enemy is in defence, he is more likely to be employing Electromagnetic Emission Control (EMCON) procedures on electronic equipment and thus IMINT is likely to be more useful. The advance to contact would normally be conducted under conditions of air superiority and thus airborne IMINT systems can be employed.

MEETING ENGAGEMENT

26. **General**. The meeting engagement is a combat action that may occur when both sides seek to fulfil their mission by offensive action. It often occurs during an advance to contact and can easily lead to a hasty attack. In offensive, defensive or delaying operations it marks a moment of transition in that the outcome may well decide the nature of subsequent operations. This is why a meeting engagement is described as a transitional phase. Even when the main part of a force is attacking, defending or delaying, individual elements may find themselves in situations which have the characteristics of a meeting engagement. The meeting engagement differs from the advance to contact in that it occurs unexpectedly whereas in the advance to contact the Commander is deliberately seeking to establish contact with the enemy.

27. ISTAR seeks to avoid the meeting engagement by achieving information superiority and thus identifying the enemy's movement and providing enough warning to the force in order to transition quickly to the offence. The friendly force can then mass superior combat power and use its mobility to press the attack through precision manoeuvre at the time and place of their own choosing. The enemy is faced with the uncertainty and confusion that normally accompanies the meeting engagement. Upon contact with the enemy, ISTAR monitors the enemy's actions in order to maintain the information superiority and keep the enemy off balance.

28. In the event that a meeting engagement occurs, the ISTAR system is focussed on rapidly determining the enemy centre of gravity and critical vulnerabilities in order to allow the Commander to attack at the most decisive time and place. The disruption of the enemy advance allows the friendly forces to transition quickly to an exploitation.

LINK-UP

29. **General**. Link-up is conducted to join two friendly forces in enemy controlled territory. It may therefore be necessary to destroy the enemy between these forces before a link-up is established. Both forces may be moving towards one another, or one may be stationary or encircled. They may have the same or differing missions. A link-up operation could occur under the following circumstances:

a. A link-up between two forces engaged in converging attacks may take place when each force captures adjacent objectives, thus completing encirclement.

b. A link-up with encircled or cut-off forces may take place on the perimeter of the defensive position established by that force. When the link-up is combined with a breakout action, it may take place at another designated objective. The encircled force should try to break out, or at least mount some form of diversionary action in order to ease the task of the relieving force by diverting enemy attention.

c. A link-up operation with an air delivered or infiltrated force may take place on the perimeter of its defensive position. In this case, the link-up is normally followed by a passage of lines or by a relief of the forces involved.

30. The link-up presents a great challenge to the ISTAR system. In addition to identifying and locating the enemy, ISTAR is also required to identify friendly forces as well. When the other force is encircled or is of another nation, Blue SA tools may not identify the forces to the same precision as with our own forces. As a result, ISTAR needs to separate enemy from friendly at the point of link-up.

WITHDRAWAL

31. **General**. A withdrawal occurs when a force is ordered to disengage from an enemy force. It seeks to disengage its combat forces from the enemy although contact may be maintained through

other means such as indirect fire, reconnaissance or surveillance. The order to withdraw will not normally be given by the Commander without the agreement or direction of his superior Commander. A withdrawal may be undertaken for the following reasons:

a. if the object of the operation cannot be achieved and the force is threatened by defeat;

b. the objective is achieved and there is no further requirement to maintain contact;

c. to avoid battle in unfavourable tactical conditions;

d. to draw the enemy into an unfavourable posture, for example, to extend his lines of communication;

e. to conform to the movements of adjacent friendly forces;

f. to allow for the use of the force or parts of the force elsewhere; and

g. for combat service support reasons; i.e., the force can no longer be sustained.

32. ISTAR units perform in the withdrawal in much the same way as during the covering force battle in the defence or as they would in the delay.

RELIEF

33. **General**. When combat activities are taken over by one force from another, this is referred to as the conduct of relief operations. Relief operations are undertaken when forces:

a. are unable to continue with their mission;

b. are required for operations in another area;

c. have accomplished their mission;

d. are due for rotation to avoid exhaustion; and

e. are not suitable to accomplish the new task.

34. ISTAR assets must be rotated in much the same way as all other units. During a relief in place, security is gained by concealing the fact that the relief is taking place or by concealing the time or progress of the relief. Frequencies and emissions must be controlled so that the enemy does not detect a sudden increase in activity. This is of particular concern when the relief is conducted with a force of another nation that may have equipment that operates on different frequencies.

CHAPTER 7
OPERATIONS OTHER THAN WAR

Canada is an unmilitary community. Warlike her people have often been forced to be; military they have never been.

C.P. Stacey 1955

SECTION 1
GENERAL

1. In operations other than war (OOTW), information collection takes on an even greater significance. At times, the IO plan might even be considered to be the main effort. As a result, all of the assets of the formation may be dedicated to the ISTAR effort to a certain extent.

2. If this is the case, the directions to the ISTAR CC then come more from the G3 and less from the G2. The Commander himself may take a more active role in directing the ISTAR effort in inverse proportion to the level of the threat of physical violence that might erupt during the mission. The higher the likelihood of physical violence, the faster the operational tempo, the less time the Commander and G3 are to be involved in the management of the ISTAR effort.

SECTION 2
PEACE SUPPORT OPERATIONS[25]

3. **General**. Peace Support Operations (PSO) can involve a wide range of operations from small forces of observers monitoring compliance with a peace agreement to large-scale peace enforcement operations. While ISTAR can play a role across this broad range, the former is likely to be too small to have sufficient assets to constitute a well-developed ISTAR system. The latter would have an ISTAR system, but it is likely to perform the same tasks in the same way as they would be performed in a warfighting situation. As a result, this

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[25] B-GL-322-005/FP-001 *Peace Support Operations* provides more detail on the conduct of PSO.

section focuses on the traditional peacekeeping force where a brigade or a battalion is deployed in accordance with an international agreement to prevent or deter the recourse to armed conflict.

4. The environment of this type of mission is typically characterized by extended lines of communications and dispersed deployments. All units are likely to be involved in ISTAR tasks. While the direct threat to the force or to the mission remains low, there is likely to be more involvement in the ISTAR process by the G3 and the Commander.

5. The ISTAR system is more reliant on HUMINT cross-cueing. Many of the modern sensors, such as Synthetic Aperture Radar (SAR) and ground surveillance radar, are optimized for detecting formations of military vehicles. As a result, they do not perform well in a PSO environment with finding indivual people or vehicle in the clutter of the normal population. They cannot always provide the early detection of activity that is their role in warfighting. HUMINT is often used to provide the early detection to cue other collectors to their targets. HUMINT can be collected from a variety of sources:

a. Patrols are often carried out in PSO as a means of showing a presence in order to deter aggression. These patrols are also excellent sources of HUMINT, since a regular patrol can detect difference in day to day activity that might signal an impending event.

b. Civilians are normally in greater contact with the troops than in warfighting. Civilians are employed as support staff and translators within units. Units are often engaged with Non-Governmental Organizations (NGO) and local civilian administrators as part of a post-conflict rebuilding effort. Information gained from these contacts can be of great value in building the COP.

c. Observation Posts (OP) and Vehicle Check Points (VCP) are often established as part of security operations. Soldiers performing these duties are also a great source of information for the ISTAR effort.

6. The information gained from these reports is often used to initiate a specific collection effort against a target. This collection effort may be another HUMINT source, such as an OP or a patrol, or it may involve electronic or electro-optical surveillance of a target in an effort to collect specific evidence of illegal activity.

7. The intelligence effort most likely concentrates on HUMINT requirements. These activities may become more complex, diverse and political in nature. The response to threats is most likely non-lethal, e.g. PSYOPS and Public Affairs. The G2 could be even busier than in a high intensity operation, mainly because there may not be any firm databases to work with, and there may be only partial friendly, neutral, and belligerent Order of Battle (ORBAT) to consider. The collectors are probably used for other purposes instead of identifying enemy vehicles.

8. **Coordination**. Coordination is required at lower levels in PSO. ISTAR CCs are required at unit level in addition to the ISTAR CC at formation. Centralized coordination is still possible due to the slower pace of operations during PSO. When the CO is involved in the ISTAR effort at unit level it can be assumed that the formation Commander is likewise involved.

ISTAR AT UNIT LEVEL

9. When a unit is conducting PSO independent of a Canadian formation, it is likely to be reinforced by ISTAR assets in order to accomplish its mission. The reinforcement must include the analytical capability and the CIS necessary to accomplish the task. An ISTAR CC is required to manage the process and to maintain the links to National sources and to the higher formation intelligence network.

SECTION 3
DOMESTIC OPERATIONS

GENERAL

10. The role of ISTAR in Domestic Operations is similar to the role in PSO. There is a similar range in the nature of the operations in Domestic Operations. The range is less related to the size of the force

but rather it is related to the degree of force that the Army is authorized to employ.

TYPES OF DOMESTIC OPERATIONS

11. The CF defines[26] five broad categories of Domestic Operations:

a. **Provision of Services**. Provision of Services occurs when military resources are loaned to municipal government or other agencies. Costs may be borne by the department or may be charged back to the requester. It is unlikely that ISTAR assets would be used in this role.

b. **Humanitarian Assistance**. Humanitarian Assistance is any action taken to save lives, prevent human suffering or mitigate property damage due to a man-made disaster, natural disaster or some other reason. ISTAR assets can be of great value, particularly for monitoring activity in inaccessible or restricted areas.

c. **Assistance to Law Enforcement Agencies**. The CF does not have a standing mandate to enforce the laws of Canada. On occasion, CF resources will be used to support the law enforcement activities of a municipality, region, territory or province or to assist the RCMP. The assistance is usually in the form of a particular skill or asset, e.g., EW. ISTAR units have capability that may be of value in this type of assistance.

d. **Aid of the Civil Power—National Defence Act Part VI**. The Chief of the Defence Staff (CDS) must respond to requests from a provincial Attorney

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[26] The Canadian Forces policy on Domestic Operations is currently embodied in DCDS Instruction 2/98.

General to use the CF in Aid of the Civil Power. ISTAR assets may be employed separately or in support of an armed force providing Aid of the Civil Power.

e. **The Emergencies Act**. The federal government may assume special powers under the Emergencies Act for a critical situation of a temporary nature. This is an extreme action and would only take place in very exceptional circumstances. This would involve a massive disaster that overwhelms provincial ability to cope or a disturbance of the peace beyond the capability of provincial and federal law enforcement agencies.

12. **Constraints**. There is greater sensitivity to the use of ISTAR in Domestic Operations. ISTAR assets are constrained by domestic legal considerations that may not apply to PSO. CF personnel are prohibited from gathering intelligence on persons in Canada, including the exploitation of the electro-magnetic spectrum aimed at fulfilling intelligence requirements, without a specific legal mandate and direction issued by the CDS.

13. The Canadian Forces National Counter Intelligence Unit (CFNCIU) has the responsibility for the collection of domestic security intelligence. The Canadian Forces National Investigation Service (CFNIS) and the CFNCIU are the only agencies authorized to liaise with civil law enforcement agencies for police intelligence.

14. **Employment**. There is still a great opportunity to employ ISTAR collectors within constraints. The targets for the ISTAR system are not always human. In a flood control situation, UAV can be used to monitor progress of the extent of the flood in areas inaccessible by road and over distances impractical by boat. Ground surveillance radar can be used to monitor movement in evacuated areas. Any employment of ISTAR assets must be governed by a clear mandate and conducted within the law.

15. **Media**. In Domestic Operations, there will be a greater presence of domestic media organizations. If the operation demands the employment of military force then it is certainly to be a story of great interest to the Canadian media. There are also fewer restrictions

on the freedom of movement of the media during Domestic Operations than there would be on foreign deployments.

16. Domestic Operations are also characterized by greater access to open source information. The presence of media can also be a boon to information collection. Activity and attitudes of local populations can be monitored by exploiting open sources. The media are often willing to assist in the accomplishment of the mission by providing stories explaining how the military is conducting its operations. This may be of great value in the IO plan and cannot be overlooked.

GLOSSARY

Attack Guidance Matrix. An AGM is a list of approved High Payoff Targets, the method and accuracy of detection involved, time sensitivity and method of engagement, and the requirement and method for post-attack assessment. AGMs are developed jointly by the operations, intelligence and fire support staffs.

Battle Damage Assessment. BDA is the timely and accurate assessment of damage resulting from the application of military force, either lethal or non-lethal, against a target. It provides commanders with an estimate of the enemy's combat effectiveness, capabilities and intentions. It is part of the Assess function of the Targeting Process.

Battlespace. The area within which a formation/unit can acquire targets and physically dominate the adversary. It generally includes all or most of the area of operations, as well as areas outside of the area of operations. Battlespace size varies over time according to how the Commander positions controlled resources. Targets may be engaged within the battlespace with organic resources or those of other commands on its behalf.

Battlefield Visualization. The process whereby the Commander develops a clear understanding of his current state with relation to the enemy and the environment, envisions a desired end state, and then subsequently visualizes the sequence of activity to this end state. BV has two components: the art of BV, which is a human process that can be developed in all of us to a greater or lesser degree, and the science of BV, which deals with the technology that can enhance our human capabilities.

Common Operating Picture. The representation of Situational Awareness (SA). It has distinct parts that represent the Blue, Red and Brown portions of SA. In a digitized Headquarters the COP would normally be represented as digital overlays on a digital map display. It can also be represented on a paper map using talc or acetate overlays.

Cueing or Cross-cueing. The act of a collector or collectors highlighting a potential target for other collectors or shooters. This is important for both Target Acquisition and Target Development.

Decision Point. A DP represents a point on the map where a Commander must make a decision to effect a result at a particular Target Area of Interest. DPs may also be associated with friendly forces and the status of current operations.

Decision Support Template. A DST is a graphic record depicting Decision Points, their related Target Areas of Interest, and any other graphic control measures necessary to execute a specific friendly Course of Action.

Doctrinal Template. A doctrinal template is a graphic representation of postulated enemy doctrine scaled to the map in use. It normally depicts the enemy's organization for combat, frontages, depths, boundaries, objective depths, battle positions, and other control measures.

Event Matrix. An event matrix is a description of the indicators and activity expected to occur in each Named Area of Interest (NAI). It normally cross-references each NAI and indicator with the times they are expected to occur and the courses of action they will confirm or deny.

Event Template. An event template is a graphic guide for information collection planning. It depicts Named Areas of Interest (NAIs) where activity, or lack thereof, will indicate which course of action the enemy has adopted.

High Payoff Target. A HPT is an High Value Target whose loss to the enemy contributes substantially to the success of friendly operations.

High Value Target. A HVT is a resource that an enemy Commander requires for the successful completion of a specific enemy course of action.

Indicator. An indicator is positive or negative evidence of enemy activity, or any characteristic of the area of operations, which points toward enemy vulnerabilities or the adoption/rejection by the enemy of a particular course of action (COA). Information about indicators often influences the Commander's selection of a COA.

Information Operations. Continuous military operations with the Military Information Environment that enable, enhance, and protect the Commander's decision cycle and mission execution to achieve an information advantage across the full range of military operations. Information operations include interacting with the Global Information Environment and exploiting or denying an adversary's information and decision systems.

Information Requirement. IRs are those items of information regarding the enemy and the environment which need to be collected and processed in order to meet the Commander's intelligence requirements.

Intelligence Preparation of the Battlefield. IPB is a systematic and continuous process by which enemy capabilities, vulnerabilities and probable courses of action in a specific geographic area are determined. IPB is a methodology for the conduct of the Intelligence Estimate.

Munitions Effect Assessment. MEA is used as the basis for recommending changes to increase the effectiveness of tactics, methodology, weapon system selection, munitions and weapon delivery patterns. This is part of the Assess function of the Targeting Process.

Mission Command. The philosophy of command that promotes and devolves unity of effort, the duty and authority to act, and initiative to subordinate commanders.

Named Area of Interest. A NAI is the geographic area where information that will satisfy a specific Information Requirement can be collected. NAIs are usually specified to identify enemy courses of action, but may also be related to conditions of the battlefield.

Priority Intelligence Requirement. PIRs are those intelligence requirements for which a Commander has anticipated and stated as a priority. PIRs are prioritized and may change in priority during the conduct of operations.

Situation Template. A situation template is a graphic representation of assumed enemy dispositions based on enemy doctrine and the effects of the battlefield. Normally the situation template depicts

enemy units two levels down, as well as the expected locations of High Value Targets.

Situational Awareness. The representation of the knowledge that Commanders require in order to make decisions. SA has three components. **Blue SA** provides information on the friendly forces disposition and the overall battlefield geometry (i.e. boundaries, control measures, etc). It also provides Commanders with asset visualization, the accurate status of his own and other friendly forces' human, materiel and information resources. **Red SA** provides information on the enemy location, disposition, status and intention. **Brown SA**, provides information on all aspects of the environment where operations are conducted. It consists primarily of terrain and meteorological information but could also include information about space, geo-spatial relationships, the electromagnetic spectrum, politics, economics, sociology and law. Red and Brown SA form what we have traditionally called Intelligence, that is knowledge of the enemy and the terrain.

Split-based Operations. Geographically separated elements that support the same mission and respond to the same Commander. Some elements may be outside the theatre of operations.

Synchronization. Synchronization is the arrangement of battlefield activities in time, space and purpose to produce overwhelming combat power at critical points on the battlefield.

Synchronization Matrix. A synchronization matrix is a time-based representation of friendly or enemy battlefield capabilities throughout the conduct of an operation. It becomes a master execution matrix.

Target. A target is an adversary's function, formation, equipment, facility or terrain planned for capture, destruction, neutralization or degradation in order to destroy, disrupt, delay or limit the adversary.

Targeted Area of Interest. TAIs represent areas where a Commander can influence the battle by destroying, delaying or disrupting the enemy.

Targeting Process. Targeting identifies, prioritizes, detects and destroys High Value Targets. The process comprises a "decide, detect, deliver and assess" methodology.